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 (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.*	• A total of 193 surface diamond drillholes (including 7 re-drilled holes) for 41,919 m and 53 surface trenches for 1,649 m had been completed at the Hawiah deposit, in the Project Licence area up until August 2021. • In 2022, a further 20 diamond drillholes for 7,675 m were completed to test along strike and down plunge continuations. Three "mega-trenches" with a combined length of 140 m were excavated to expose the full gossan profile from hangingwall to footwall at a depth of between 4 m and 5 m below surface. 114 surface reverse circulation (RC) drillholes (including 10 re-drilled holes) for 4,845 m were completed in 2022 in order to provide representative samples from the oxide mineralisation. • Sample intervals generally range from 0.3 m to 3.0 m for diamond drilling, 1.0 m to 3.0 m for trenching and 1.0 m to 3.0 m for RC drilling. Typically, 1.0 m nominal length samples were taken in mineralised zones from the trenches and RC holes, whereas longer samples were taken outside mineralised zones or in areas with poor recovery. One-metre-long samples were nominally taken from diamond drill core, however sample lengths were varied according to lithology and/or mineralisation intensity. Longer samples of two or three metre lengths were taken a distance into the hangingwall or footwall. • The mineralised interval for all sample types was continuously sampled from hangingwall to footwall, which included samples a short distance into the hangingwall and footwall. • The RC sub-samples were collected using a rig mounted ⅛ riffle splitter under the cyclone. • Field samples (half core, channel sample chips or RC chip sample split) were crushed to 70% passing 2 mm at the laboratory and then a 250 g split was pulverised to 85% passing 75µm, from which a charge for fire assay was prepared with AAS finish for gold. 4-acid digest with ICP-AES was used for silver, copper, and zinc.

Section 1 Sampling Techniques and Data (Criteria in this section apply to all succeeding sections).		
Criteria	**JORC Code explanation**	**Commentary**
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit, or other type, whether core is oriented and if so, by what method, etc.).*	• Diamond drilling techniques were mostly HQ diameter (63.4mm core diameter) using double tube core barrels. HQ3 diameter core (with triple tube core barrels) was used for early drillholes (HWD_001 to HWD_025) and in zones where poorer ground conditions were anticipated, for example in the highly weathered oxide domain. • Reverse circulation drilling used a bit size of 11.43 cm or 12.7 cm.

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.*
		• Recovered core was measured for every interval and the core recovery percentage was calculated.
		• Core recovery for each oxide state in the mineralised zone is as follows:
		  • Fresh: 99.7%
		  • Transitional: 93.3%
		  • Oxide-Transitional: 79.2%
		  • Oxide: 29.9%
		• Core recovery within the oxide is poor due to the combination of hard siliceous gossan, soft spongy gossan, clay-rich material and cavities.
		• HQ3 diameter core (with triple tube core barrels) was used zones where poorer ground conditions were anticipated, for example in the highly weathered oxide domain.
		• No discernible relationship was found between Au, Ag, Cu or Zn grade and recovery. The three highest gold grade samples (>4 g/t Au) in diamond drillhole core of 16.3 g/t, 6.5 g/t and 5.5 g/t had low recovery (~30%). These grades are not unusual in trenches and RC drillholes.
		• The majority of oxide and oxide transitional sample data is from the 2022 RC drilling campaign and trench sampling. Calculated mass recovery in the oxide zone is in the order of 62%. The calculation is based on a number of density assumptions.

Section 1 Sampling Techniques and Data (Criteria in this section apply to all succeeding sections).		
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.*	• All drillcore and trench samples have been geologically logged. Geotechnical (RQD and core recovery) logging has been completed for all drillholes. • Both quantitative (geotechnical logging of RQD and core recovery) and qualitative (lithology) logging was carried out. All core has been photographed. • 100% of diamond core and trench sampling has been logged. Chip logging of RC samples was competed for all holes.

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, rotary split, etc. and whether sampled wet or dry.*
	• *For all sample types, the nature, quality, and appropriateness of the sample preparation technique.*
	• *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*
	• *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.*
	• *Whether sample sizes are appropriate to the grain size of the material being sampled.*
		• Whole core was longitudinally cut in half using a core saw on site and then half cores were submitted for preparation at the ALS laboratory in Jeddah, during which material was crushed to 70% passing 2 mm, and a 250 g split pulverised to 85% passing 75 µm for analysis.
		• All sample material from each 1 m trench sample was sent to the laboratory and then crushed, split and pulverised in the same manner as the core samples.
		• The RC sub-samples collected every metre from a ⅛ riffle splitter at the rig were sent to the laboratory and then crushed, split and pulverised in the same manner as the core samples.
		• The nature, quality, and sample preparation techniques are appropriate for all sample types.
		• Field duplicates were taken at a rate of 1 in 20. These comprised:
		  ◦ RC chip sample duplicates taken from the remaining ⅞ of the sample using a riffle splitter. Wet samples (at the base of transition zone) were sun-dried, hand crushed and riffle split for duplicate sample preparation.
		  ◦ Quarter core duplicates
		  ◦ Trench sample coarse duplicates.
		• Sample sizes are appropriate to the grain size of the material being sampled. The variability of gold, silver, copper and zinc grades is generally low and the gold does not appear to occur as visible

Section 1 Sampling Techniques and Data (Criteria in this section apply to all succeeding sections).		
Criteria	**JORC Code explanation**	**Commentary**
		coarse free gold ("nuggety" mineralisation), there being no extreme gold grades.
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 (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.*	• Copper, zinc and silver were analysed at ALS Jeddah by 4-acid digest read with ICP-AES (Method Code ME-ICP61). High grade analyses were completed where the initial assay returned values at the trigger-limit of 5,000 ppm for Cu, 8,000 ppm for Zn and 75 ppm for Ag using method codes Cu-OG62, Zn-OG62 and Ag-OG62 respectively. • Gold was assayed using fire assay and read with AAS. • The methods of analysis involve near total digest and are standard methods that are applicable to the type of mineralisation at Hawiah. • The Hawiah QAQC programme reserved approximately three in every twenty samples as QC samples (usually one blank sample, one Certified Reference Material (CRM) and one field duplicate), resulting in a total of approximately 15% QC samples for all drilling and trenching campaigns since 2015. The QC samples were inserted as part of the continuous sample numbering sequence. • G&M has implemented a proactive approach to QAQC, whereby each batch of results is examined immediately on receipt from the laboratory, any issues are highlighted and corrective measures are implemented where necessary. • Blank samples were not submitted for the 2015 trenching. Blank sample submission averaged 6% for the drilling and recent trenching. Certified blank material was purchased from OREAS, which is igneous material with gold and silver below the method detection limit but naturally contain small quantities of copper and zinc. The results of the blank samples indicate that minimal contamination occurred with no gold assays greater than ten times detection limit and only 4 failures for silver. Most copper and zinc assays are within or slightly higher than the blank sample upper limit.

Section 1 Sampling Techniques and Data (Criteria in this section apply to all succeeding sections).		
Criteria	**JORC Code explanation**	**Commentary**
		• Twenty different CRMs were used to monitor the accuracy of the gold assays, ten for silver and eleven for copper and zinc. These were sourced from OREAS and Geostats Pty Ltd. The results of the CRM analysis demonstrate that there was no overall assay bias for any elements. • Field duplicates comprise quarter core duplicates (512), RC chip duplicates (194) and trench sample coarse duplicates (7). 87% of the gold assays were within 20% precision and >95% of the silver, copper and zinc assays were within 20% precision. The results indicate minimal sampling error and precise assays. • The results of the QAQC demonstrate that the assays are accurate and precise with minimal contamination and that they are of sufficient quality for use in Mineral Resource estimation with a high degree of confidence.
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.*	○ Jeremy Witley of MSA completed a visit to the Hawiah project from 28 October to 02 November 2022. No drilling activities were taking place at the time, however exploration procedures, were explained and demonstrated by the G&M personnel. The "mega trench" excavations, drillhole collars and exposed gossan were examined and their positions verified by hand-held GPS. A number of diamond drill core intersections that covered the range of oxidation states and intensity of mineralisation at the project were examined. The significant copper assay results of these cores were verified by visual inspection of the remaining cores of these drillholes. ○ No verification twin drilling has been completed. RC drilling into oxide material a short distance (10 m to 20 m) below the trenches obtained similar mineralisation to that obtained in the trenches with comparable gold and silver grades.

Section 1 Sampling Techniques and Data (Criteria in this section apply to all succeeding sections).		
Criteria	**JORC Code explanation**	**Commentary**
		○ The drillhole data are stored in a Datamine Fusion database. MSA carried out validation checks on the database outputs, with only minimal errors found that were corrected. ○ No adjustments to assay data were made. ○ MSA excluded the following drillholes and trenches from the grade estimate: ○ Shallow trench, surface sample chip sample profiles (HWTR001- HWTR0018), These were completed in the early stages of exploration and were not subjected to protocols that would be accepted for Mineral Resource estimation. Systematic trench sampling was completed over the same area during 2015 using methodology and QAQC processes to ensure representative sampling and assess the quality of the assays. ○ Reconnaissance trench sampling completed on adjacent prospects within the project area (HAT054 to HAT060). ○ Drillholes that were abandoned before drilling through the entire mineralised interval. In all cases these were re-drilled to achieve a full intersection. ○ Drilllholes completed as part of the Geotechnical investigations, as no assay was completed. ○ Drillholes completed as part of Geohydrological investigations, as no assay was completed.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• The topographic survey for drillhole collars at Hawiah has been completed by using a Topcon ES-103 total station survey tool which provides a high degree of accuracy in terms of x, y, and z coordinates. • All trenches were surveyed using differential GPS or land surveyor. • All drillholes have been surveyed down-the hole by electronic multishot (Reflex EZ-Trac), at 6 m spaced readings for the diamond drillholes and 3 m spaced readings for the RC holes. The down-

Section 1 Sampling Techniques and Data (Criteria in this section apply to all succeeding sections).		
Criteria	**JORC Code explanation**	**Commentary**
		hole survey measurements were examined and spurious readings removed prior to de-surveying the drillholes. • The grid system is WGS 84 / UTM zone 37. • A topographic survey was completed by a G&M surveyor using Topcon ES-103 total station. The resolution of topography-station points is considered to better than 0.5 m, across the site, which is adequate for the project.
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.*	• Drillhole spacing in the sulphide Mineral Resource area is between 40 m and 60 m in the Indicated areas and approximately 120 m (less than 150 m) in the Inferred areas. The oxide and transitional areas have been intersected by trenches and drillholes spaced 50 m apart on strike and drillholes and trenches are on average approximately 20 m apart on dip. • Trenches were excavated across the deposit, 50 m apart on strike. • RC drilling was completed on a 50 m spacing along strike, generally intersecting the mineralisation between 10 m and 20 m directly beneath or slightly offset from the trench. • Drillhole spacing of approximately 50 m is sufficient to establish grade continuity for the Mineral Resource up to an Indicated level of confidence. The Hawiah deposit is characterised by strong geological continuity over distances of several km along strike, as observed by continuous gossan outcrops, and widely spaced drilling of several hundred metres is sufficient to confirm this. • Two metre composites using length and density (assigned) weighting to create equal sample support for Mineral Resource estimation.
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.*	• Trenches are approximately horizontal resulting in close to true thickness for the steeply dipping mineralisation. • Drillholes have been completed from surface at inclinations typically between 50° and 65°, providing intersection angles with the mineralisation that typically range from approximately 70° to 30°.

Section 1 Sampling Techniques and Data (Criteria in this section apply to all succeeding sections).		
Criteria	**JORC Code explanation**	**Commentary**
		• The orientation of the drilling is not considered to have introduced any material bias to the drillhole samples or block model estimate.
Sample security	• *The measures taken to ensure sample security.*	• Transport of core, RC chips and channel sample chips from drill/trench site to core processing was supervised by G&M personnel. Samples were driven to the analytical laboratory in Jeddah by a G&M driver. Sampled half and quarter core is kept in stacked core boxes at G&M's core storage area. • Reject pulps are collected by a G&M driver and kept in G&M's storage area and stored in sealed plastic drums. • The Hawiah exploration facility is fenced and access controlled by security guards at the entrance.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• MSA carried out a review of the sampling techniques and inspected the sampled core and "mega-trenches". The CP considers that the sampling techniques are appropriate for the nature of the material and mineralisation style at Hawiah.

Section 2 Reporting of Exploration Results (Criteria listed in the preceding section also apply to this section).		
Criteria	**JORC Code explanation**	• Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• G&M is a joint venture partnership between ARTAR and KEFI. The Exploration Licence is held by ARTAR, under the terms of the G&M Joint Venture agreement. ARTAR currently has a 70% share of the Project, with the remainder (30%) owned by KEFI. The Exploration Licence was granted by order of the Ministry of Energy, Industry and Mineral Resources and Deputy Ministry of Mineral Resources of Kingdom of Saudi Arabia. The Licence was originally awarded in 2014 and then renewed in October 2018

Section 2 Reporting of Exploration Results (Criteria listed in the preceding section also apply to this section).		
Criteria	**JORC Code explanation**	• Commentary
		and again on 24 May 2022. The Licence is due to expire on 1st April 2027. • There are no known impediments to obtaining a licence to continue with exploration activities.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Modern exploration at the Project commenced in 1936, with exploration activities including surface mapping, sampling and geophysics undertaken under the ownership of Saudi Arabian Mining Syndicate and, from 1956 and through to 1987, the KSA Directorate General of Mineral Resources as part of cooperative agreements. Most notably, the BRGM undertook a trench sampling program at the Hawiah prospect during 1987, which followed up on the results of earlier (1986-1987) rock chip sampling, mapping and geophysics, also undertaken by the BGRM. G&M subsequently acquired the Project in 2014. No drilling took place prior to G&M ownership.
Geology	• *Deposit type, geological setting, and style of mineralisation.*	• The Hawiah volcanogenic massive sulphide (VMS) deposit is located on the eastern limb of a regional-scale antiform in the Group 2 mafic volcanics of the Wadi Bidah Mineral Belt (WBMB). • VMS deposits form at or slightly under the sea floor by the exhalation of metal rich plumes and subsequent settling on or replacement of the fine grained sediments. They are tabular in nature and characterised by strong geological continuity over 100s of metres to several km in their undisturbed form. • The Hawiah deposit forms a prominent north-south trending ridgeline exposed over a total length of approximately 4,500 m, with a thickness that typically varies from 1 m to 15 m. The pronounced ridgeline is due to the formation of a siliceous gossan representing the oxidised, near surface portion of the original VMS mineralised horizon. The rock package comprises a suite of gossanous ex-massive sulphides, chert breccias, banded iron stones and intermediate volcanic breccias. The deposit has

Section 2 Reporting of Exploration Results (Criteria listed in the preceding section also apply to this section).		
Criteria	**JORC Code explanation**	• Commentary
		been subject to varying degrees of supergene alteration as a result of groundwater interactions. • The deposit comprises four oxidation domains; oxide, oxide-transition, transition and fresh. The oxide and oxide-transition domain typically shows supergene gold enrichment and copper and zinc leaching, while copper enrichment from supergene processes is evident in certain parts of the transitional domain. The fresh mineralised domain is dominantly pyritic stratiform massive sulphide containing fine grained copper sulphides (chalcopyrite) and zinc sulphide (sphalerite) and is characterised by low base and precious metal grade variability.
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.*	• Exploration results not being reported. • The exclusion of detailed information lists pertaining to the exploration results would not detract from the understanding of the Mineral Resource in this report,
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.* • *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.*	• Exploration results not being reported.

Section 2 Reporting of Exploration Results (Criteria listed in the preceding section also apply to this section).		
Criteria	**JORC Code explanation**	• Commentary
	• *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	
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 (e.g. 'down hole length, true width not known').*	• The mineralisation is typically sub-vertically dipping. • Trenches are horizontal resulting in near true thickness intersections. • Drillholes were drilled perpendicular to strike and at inclinations between approximately 50° (shallower depth holes)and 65° (deeper holes). There is a tendency for the drillhole inclination to decrease with depth resulting in drillholes intersecting the mineralised layer at between 30° and 70°.
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.*	• Exploration results not being reported.
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.*	• Exploration results not being reported.
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.*	• Three "mega-trenches" were excavated into the oxide zone to expose the full gossan profile from hangingwall to footwall at a depth of between 4 m and 5 m below surface. Samples of each gossan lithology were taken for density measurements using both a volumetric method ("calliper method") and by weighing in air and water (following wax-sealing). Mapping of the sidewalls and examination of the trench sidewall to establish a cavity factor, together with the density samples allowed for an estimation of in-situ bulk density for the oxide material.

Section 2 Reporting of Exploration Results (Criteria listed in the preceding section also apply to this section).		
Criteria	**JORC Code explanation**	• Commentary
Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-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.*	• Further work planned for the project is the advancement towards a various levels of feasibility study. This is in conjunction with ongoing metallurgical test work and geotechnical drilling. • Potential exists to expand the Mineral Resource at depth with additional drilling. However, the current focus of the project is on studies to demonstrate the techno-economic feasibility of the project.

Section 3 Estimation and Reporting of Mineral Resources (Criteria listed in section 1, and where relevant in section 2, 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.* • *Data validation procedures used.*	• Data is electronically logged using “tough books”. Laboratory results are delivered electronically and transferred into the Fusion database. Grades are checked by the project geologist to ensure that they are consistent with observations made on the samples. • MSA performed a number of database validation checks on the G&M digital sample data and found no material issues in the final database. These include checks for completeness of data, unexpected positional data, grades outside of expected ranges, gaps and overlaps in the sampling data.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• Jeremy Witley of MSA completed a visit to the Hawiah project from 28 October to 02 November 2022. No drilling activities were taking place at the time, however exploration procedures, were explained and demonstrated by the G&M personnel. The “mega trench” excavations, drillhole collars and exposed gossan were examined and their positions verified by hand-held GPS. A number of diamond drill core intersections that covered the range of oxidation states and intensity of mineralisation at the project were examined. The significant copper

Section 3 Estimation and Reporting of Mineral Resources (Criteria listed in section 1, and where relevant in section 2, also apply to this section).		
Criteria	**JORC Code explanation**	**Commentary**
		assay results of these cores were verified by visual inspection of the remaining cores.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• Mineralisation wireframes have been defined primarily based on lithology logging, elevated copper and gold grades (relevant to zones of anticipated grade enrichment or depletion, as described below) and visual assessments of geological and grade continuity. Selected mineralised intervals for oxide, oxide-transition, transition, and fresh zones were typically based on visually distinguishable boundaries between the mineralised zones and background host rock, with lower grade samples and interburden incorporated where necessary to honour geological continuity. • For the oxide domain, mineralisation is primarily modelled based on a combination of gossan, saccharoidal silica and haematitic chert lithologies (i.e., weathering products of the massive sulphide), relative enrichment of gold and depletion in copper and zinc, and typical red/ orange colour observed in core photos. • The oxide-transition zone occurs in certain areas between the oxide and transition zones and represents material considered to be chemically similar to the oxide (elevated gold, depleted copper) however with physical characteristics similar to the transition zone. This zone is narrow and not consistently developed across the property. • In the transition zone, mineralisation is mainly modelled based on massive sulphide logging and core observations, where transition material typically has a dark-grey to black colour (which clearly contrasts with the oxide zone). The top of the transition zone is characterised by a sudden increase in copper grade and more porous nature, while an increase in zinc grade is apparent in the more massive lower transition zone. The boundary with the fresh rock is generally visibly distinct in core. Copper grades are elevated in the transition zone as a result of supergene processes which carry on into the upper portion of the sulphide zone forming a gradational grade boundary.

Section 3 Estimation and Reporting of Mineral Resources (Criteria listed in section 1, and where relevant in section 2, also apply to this section).		
Criteria	**JORC Code explanation**	**Commentary**
		The base of the transition zone is predominantly defined by the observed sulphide state, where dark grey altered sulphides become yellow unoxidised massive pyrite. • Within the fresh rock, mineralisation is primarily modelled based on massive sulphide logging, which correlates closely with Cu-Zn-Au-Ag mineralisation. Hangingwall and footwall contacts are generally sharp and visually distinct with some banded and semi-massive sulphide close to the contact in places.
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.*	• Mineralisation modelled comprises a continuous subvertical tabular layer for approximately 4.5 km along north to south strike at outcrop. Localised minor pinch outs occur, which are not significant. Two major zones (lodes) of down-dip extent have been defined (the Camp lode in the south and the Crossroads lode in the north) which plunge approximately 30°to the south for 1.3 km (Camp) and 1.5 km (Crossroads) to approximately 700 m below surface. The mineralised layer normally has a thickness of between 1 m and 15 m and thins towards the edges of the lodes. The central portions of the deposit between the main lodes extends vertically to between 100 m and 200 m. • The mineralised zone bifurcates in some portions of the deposit and this is clearly seen in gossan mapping and drilling in localised areas of the Central Lode and Camp Lode in the southern part of the deposit.
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.* • *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 assumptions made regarding recovery of by-products.*	• The Mineral Resource estimation followed the following process: ○ G&M modelled the mineralisation extents and oxidation states using Leapfrog Geo software. MSA accepted the mineralisation models following an interactive review process during which slight adjustments to the original model were made. ○ The validated drillhole data was selected from within the wireframes by mineralisation state. Basic statistical evaluation was carried out on the raw data, including scatterplots by

Section 3 Estimation and Reporting of Mineral Resources (Criteria listed in section 1, and where relevant in section 2, also apply to this section).		
Criteria	**JORC Code explanation**	**Commentary**
	• *Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	oxidation state to establish relationships between variables and trend analysis to establish stationary zones. ○ The selected data was composited to 2 m intervals using length and density (assigned by rock type) weighting. ○ Top caps were defined based on examination of histograms, cumulative log probability plots and mean-variance plots. The outliers were then examined spatially to assess whether they formed a high grade sub-domain and whether a top-cap should be applied. ○ The data for each estimation domain was selected using various soft and hard domain boundaries between oxidation states and then the defined top-caps were applied to the selected domain data. ○ Variograms were modelled with normal scores transformed data for each element and oxidation state. The oxide and oxide-transition domains were combined and the transition and fresh domains were assessed separately for the Camp lode and Crossroads lode. For gold and silver the transition and fresh domains were combined and for copper and zinc the transition and fresh domains were assessed separately. ○ For gold and silver the primary direction is horizontally along strike for the oxide domains and plunging 25° (Crossroads) to 30° (Camp) to the south within the steeply dipping plane of mineralisation for the transition and fresh domains. For copper and zinc the horizontal primary direction was maintained in the oxide and transition domains due to deeper supergene effects, whereas a plunging primary direction was applied to the fresh. ○ The oxide domain variogram ranges were modelled between 70 m and 210 m in the primary (strike) direction, 16 m to 27 m in the down-dip direction and 2.5 m to 10 m in the across strike direction, with gold displaying the shortest continuity. In the fresh domain, variogram ranges are typically between

Section 3 Estimation and Reporting of Mineral Resources (Criteria listed in section 1, and where relevant in section 2, also apply to this section).		
Criteria	**JORC Code explanation**	**Commentary**

		100 m and 250 m in the major and semi-major directions with short across strike ranges typically from 5 m to 10 m.
		o The three dimensional solid models were filled with parent cells with dimensions of 25 mY (strike) by 2 mX (across strike) by 10 mZ (dip). Sub-cells to a minimum of 1 mY (strike) by 0.5 mX (across strike) by 1 mZ (dip) were created to closely fit the solid wireframe model along the edges.
		o The dip and dip direction of each model cell was estimated for use in the "Dynamic Anisotropy" process that modifies the search ellipse according to local variations in dip and strike.
		o The boundary conditions for each oxidation state were assessed for each element depending on the observed grade patterns near the contacts and the impact of the oxidation profile on each element.
		  o For gold and silver a soft boundary was used between oxide and oxide-transition and between transition and fresh with a hard boundary between oxide transition (or oxide where oxide transition not developed) and transition.
		  o For zinc and copper a soft boundary was used between oxide and oxide-transition. The transition zone allowed samples from the fresh zone, and the fresh zone allowed samples from 20 m into the transition zone.
		o Search parameters selected data within the modelled variogram range for each element, oxide domain and spatial domain (where relevant). A second search 1.5 times the variogram range selected samples where the minimum number was not selected from within the variogram range. A third search 3 times the variogram range selected samples where the minimum number was not selected in the first two passes. A further expanded fourth search was applied to blocks that were still not estimated, which define low

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		confidence estimates not normally considered as a Mineral Resource. o A minimum of 5 and a maximum of 16 two metre composites were used for first pass estimation, a minimum of 5 and a maximum of 12 two metre composites were used for second pass estimation, and a minimum of 5 and a maximum of 8 two metre composites were used for third pass estimation. The fourth pass selected the nearest eight composite samples to the block. o A maximum of four composite samples were allowed from a single drillhole, except for the fourth pass where this restriction was not applied. o Cu, Zn, Au, and Ag grade were interpolated into the block model using ordinary kriging using the back transformed variogram model data. o Density was assigned a value of 2.32 t/m^3 for oxide. For the other domains the mean measured density was assigned to the massive sulphide for each oxide state and a mean density for the remaining group of lithologies (Interburden) within the mineralised envelope for each oxide state. Density was assigned by logging interval and then composited to 2 m intervals and estimated using inverse distance to the power of 3 (ID3) with a search ellipse of 120 mY by 5mX by 20 mZ for the oxide and transitional domains with the primary direction horizontally on strike, and 120 mY by 5mX by 120 mZ for the fresh domain. A minimum number of 4 and a maximum number of 8 composites was used in a three pass estimate and no restriction was applied to the number of composites per drillhole. A 10% void factor was then applied to the oxide-transition and 5% to the transition domain. o The estimated block grades were examined relative to the sample composites using visual, statistical and swath plot (sectional) validation techniques.

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		• No check estimates were carried out. SRK completed a Mineral Resource with an effective date of 15 November 2021. This estimate did not include the shallow reverse circulation drilling or the deep resource extension drilling as this was carried after the effective date. Similar grades were estimated, although the step-out drilling increased the tonnage in this 2022 estimate by approximately 15% and a larger portion of Indicated Resources were declared due to additional near surface drilling. • No by-products have been estimated as part of this MRE. • No deleterious elements have been estimated as part of this MRE. • Block dimensions are of 25 mY (strike) by 2 mX (across strike) by 10 mZ (dip). These dimensions were chosen to reflect half the average drillhole spacing near surface and to appropriately reflect the grade variability within the modelled mineralised domains. • Selective mining units have not been modelled as part of this MRE. For Whittle open-pit optimisation, the block model was regularised to 5 mX by 5 mY by 2.5 mZ. • No correlation was found between the estimated variables during raw statistical analysis, therefore they were estimated independently of one another. • No reconciliation data are available.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Tonnages are estimated on a dry basis.

Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• A Whittle optimised pit shell was used to report open-pit Mineral Resources and a mineable shape optimisation (MSO) was completed for underground Mineral Resources outside the open-pit shell.
		• The Whittle, MSO and cut-off grades were derived using the following cost and revenue assumptions:
		  ○ Metal Price: Cu 9350 USD/t, Zn 3300 USD/t, Au 1820 USD/oz, Ag 26 USD/oz.
		  ○ Dilution included in regularised block model for open-pit and 10% applied for underground.

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		o Concentrator Recovery: Cu 92%, Zn 76%, Au 84% in oxide and 74% in fresh, Ag 15% in oxide and 83% in fresh. No recovery of zinc and copper in oxide. o Smelter recovery/payability: Cu concentrate - Cu 95.5%, Au 90%, Ag 90%. Zn concentrate - Zn 84.9%. Au Dore - Au 99.5%, Ag 99.6%. o Pit slope angle: Fresh 53%, Transition and Oxide: 42% o Open pit dilution. Included in 5 mX by 5mY by 2.5 mZ regularised block. o Underground stope size 20 m strike, 25 m dip, minimum 2 m stope width. o Total mining cost: open pit oxide 2.2 USD/t, open pit transition and fresh 2.4 USD/t, underground 30.0 USD/t. Cost adjustment for open-pit depth USD0.004/ vertical m. o Total Processing cost: oxide 15.4 USD/t, transition and fresh 19.5 USD/t. o G&A: 5.6 USD/t ore. • A net smelter return (NSR) calculation was carried out by G&M that was reviewed and accepted as reasonable by MSA. The cut-off grade was applied on a NSR basis: underground fresh ore 49.5 USD/t, open-pit transition and fresh ore 21.9 USD/t, open-pit oxide ore 17.6 USD/t. • NSR was calculated for each block model cell: o Oxide = (Cu %*0)+(Zn%*0)+(Au g/t 48.8912)+(Ag g/t*0.1217) o Transition and Fresh = (Cu %*72.6915)+(Zn%*16.4965)+(Au g/t *41.767)+(Ag g/t*0.6579)
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*	• Open pit mining will be used for the near surface portion of the Mineral Resource. • The remainder of the Mineral Resource will be extracted using underground mining methods such as long-hole open stoping with panels of 20 m strike, 25 m dip, minimum 2 m stope width and assumed 10% external dilution.

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	should be reported with an explanation of the basis of the mining assumptions made.	
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining 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.*	• Copper and zinc sulphides are expected to be recovered by flotation to produce a concentrate containing copper, gold and silver. • A separate concentrate for zinc is expected to be produced. • The gold and silver will be recovered from the oxide zone using leaching to produce Dore. No copper or zinc will be recovered from the oxide zone.
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.*	• MSA is unaware of any environmental factors which would preclude the reporting of Mineral Resources.
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.* • *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.*	• For oxide density: three "mega-trenches" were excavated into the oxide zone to expose the full gossan profile from hangingwall to footwall at a depth of between 4 m and 5 m below surface. Samples of each gossan lithology were taken for density measurements, using both a volumetric method ("calliper method") and by weighing in air and water (following wax-sealing). The two methods gave similar results and the average of the two was used for each lithology. Mapping of the sidewalls and examination of the trench sidewall to establish a cavity factor, together with the density samples allowed for an estimation of in-situ bulk density for the oxide material. The cavity

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	• *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	factor varied between 5% and 15% depending on the nature of the exposure. Small sinkholes containing sand were included in the estimation. The average estimate value for the three "mega trenches" was applied to all oxide material. It is likely that the oxide density will vary across the Mineral Resource, with lower in-situ bulk density expected in the wadi areas and potentially higher density at depth where sink holes may be less frequent. Density was assigned a value of 2.32 t/m^3 for oxide. • Density measurements were made on drill core during the 2019-2022 diamond drilling programmes. The Archimedes principle of weight in air versus weight in water was used on pieces of core typically measuring 10 cm to15 cm in length. The cores were waxed when visibly porous. • For oxide-transition, transition and fresh domains: the mean measured core density was assigned to the massive sulphide for each oxide state and a mean density for the remaining group of lithologies (interburden) within the mineralised envelope for each oxide state. Density was assigned by logging interval and then composited to 2 m intervals and estimated using inverse distance to the power of 3 (ID3). A 10% void factor was then applied to the oxide-transition and 5% to the transition domains.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (i.e. 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).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• The Mineral Resource was classified into Indicated and Inferred categories. In classifying the Mineral Resource, MSA considered, confidence in the data, geological continuity, geological model confidence and grade continuity. • The data are generally of high quality: o Core recovery in the fresh domain is excellent and good in the transition domain with zones of poorer recovery in the upper transition. Poor core recovery was noted in the oxide domain, however this only affects six diamond drillholes as the remainder of the drillholes in this domain are by reverse circulation drilling which is less impacted by recovery.

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		○ Appropriate sampling methodology was used and logging is of acceptable quality. ○ The trench sample gold and silver grades were verified by the reverse circulation sample grades as local trends and high grade zones were reflected in both data sets. ○ The QAQC of the assay data demonstrates acceptable accuracy, minimal contamination and high precision. Field duplicates confirm that the sub-sampling is appropriate. ○ All trenches and drillholes are accurately surveyed. ○ The density data are adequate for local estimation in the transition and fresh material. Global in-situ bulk density was applied to the oxide zone. The "mega-trench" observations and density samples have addressed much of the risk in this area, however the measurements are limited to only three trenches. • The geological model is robust and continuity is high: ○ The Hawiah VMS deposit exhibits geological continuity on a scale of several km on strike and over 1 km in the down plunge direction. The down-dip continuity of the central portion is limited to 100 m to 200 m. ○ Locally pinch-outs occur, which have been accounted for in the model as well as narrowing of the mineralised unit towards the model edges. ○ No faults have been interpreted. Although faults are likely to occur, they are not large and are unlikely to pose high geological risk. ○ The interpretation of the oxide zones is sound and based on a combination of visual and chemical factors. The drillhole spacing is closer in the oxide to transition zone (generally less than 20 m) and the oxide domain boundaries are likely to be accurate within 5 m to 10 m locally. • Grade continuity: ○ Variograms have been modelled for all oxidation domains and separately for the Camp and Crossroads lodes for transition and fresh.

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		◦ The oxide variography demonstrates continuity of 70 m strike by 20 m dip for gold, which is longer or similar to the drillhole and trench spacing. Variogram model ranges are in excess of the data spacing for silver in the oxide. ◦ Modelled variogram ranges of between 100 m and 250 m in the transition and fresh domains are well in excess of the general drillhole spacing of 40 m to 60 m over much of the area. ◦ Well defined grade trends occur that are aligned with expected near horizontal orientations and strike direction in the oxide and transition domains where oxidation is a major control. Well defined grade trends align with the plunge of the lodes in the fresh mineralisation. • Considering the aforementioned factors, the classification was applied as follows: ◦ oxide mineralisation was classified as Indicated where data spacing is approximately 50 m along strike by 25 m down-dip or closer. ◦ Transition mineralisation was classified as Indicated where the drillhole intersections are 50 m apart or closer. ◦ Fresh mineralisation was classified as Indicated where the estimates are informed by a grid of closer than approximately 60 m apart, while considering the directions of strongest continuity. ◦ The remainder of the deposit was classifies as Inferred where within the sparse drillhole grid of up to approximately 150 m with maximum extrapolation of between 100 m and 120 m depending on the geological continuity of the area. Blocks estimated within the fourth search pass were generally not classified as Mineral Resources. • This classification was prepared by, and reflects the views of, the Competent Person.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• Members of the G&M Hawiah geological team have reviewed and accepted this estimate.

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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.* • *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.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• The Hawiah Mineral Resource has reached a level of confidence consistent with that of a pre-feasibility study. Targeted infill drilling and additional oxide density data will be required to bring portions of the Mineral Resource to Measured confidence. • Despite block model estimation having been carried out, Inferred Mineral Resources should be considered global in nature and not suitable for mine planning to derive Ore Reserves. • No production data are available.