

20 November 2019

ASX : ARV

ATY : FRANKFURT

ARTTF: OTCQB

## GOLD and COPPER FOCUS

ARTEMIS RESOURCES LIMITED IS AN AUSTRALIAN MINERAL DEVELOPER ADVANCING ITS WEST PILBARA BASE METALS, BATTERY AND PRECIOUS METALS ASSETS TOWARDS PRODUCTION.

ARTEMIS HAS CONSOLIDATED A MAJOR LAND HOLDING IN THE WEST PILBARA AND IS THE 100% OWNER OF THE RADIO HILL OPERATIONS AND PROCESSING INFRASTRUCTURE, STRATEGICALLY LOCATED 30 KM FROM THE CITY OF KARRATHA, THE POWERHOUSE OF THE PILBARA.

ARTEMIS ALSO HAS 1,140 KM<sup>2</sup> IN THE PATERSONS RANGE WITH ALL GOLD AND COPPER TARGETS WITHIN 40KM OF THE TELFER GOLD MINE AND SURROUNDING THE HAVIERON DISCOVERY BEING DRILLED BY NEWCREST AND GREATLAND GOLD.

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## SIGNIFICANT RESOURCE INCREASE FOR CARLOW CASTLE (WA)

### GOLD RESOURCE JUMPS 60% & COPPER RESOURCE UP 25%

#### Highlights

- Gold (Au) resource significantly increased by 60%, Copper (Cu) resource increases 25% and Cobalt resource increased 15%<sup>1</sup>
- Inferred Mineral Resource estimate now 418koz Au, 48kt Cu and 7kt Co within 8Mt @ 0.51% Cu, 1.6 g/t Au and 0.08% Co.
- The Company's 100% owned Radio Hill Processing plant just ~35 km from Carlow Castle project, potentially provides an option to fast track infrastructure to process Carlow Castle material.
- Planned work program of resource infill drilling, and assaying of a select number of stored assay pulps for acid-soluble copper, designed to address issues currently limiting resource classification to Inferred and provide the opportunity to upgrade the classification to Indicated.
- Metallurgical testwork to commence shortly to characterise the resource and define Metallurgy zones.

Artemis Resources Limited ("Artemis" or "the Company") (ASX:ARV, Frankfurt: ATY, US OTCQB: ARTTF) is pleased to announce a **significant increase** in the Mineral Resource Estimate (MRE) in grade and metal tonnes in accordance with JORC Code (2012) at the Company's 100% owned Carlow Castle Project (E47/1797). A summary of the Carlow Castle MRE is tabulated in Table 1.

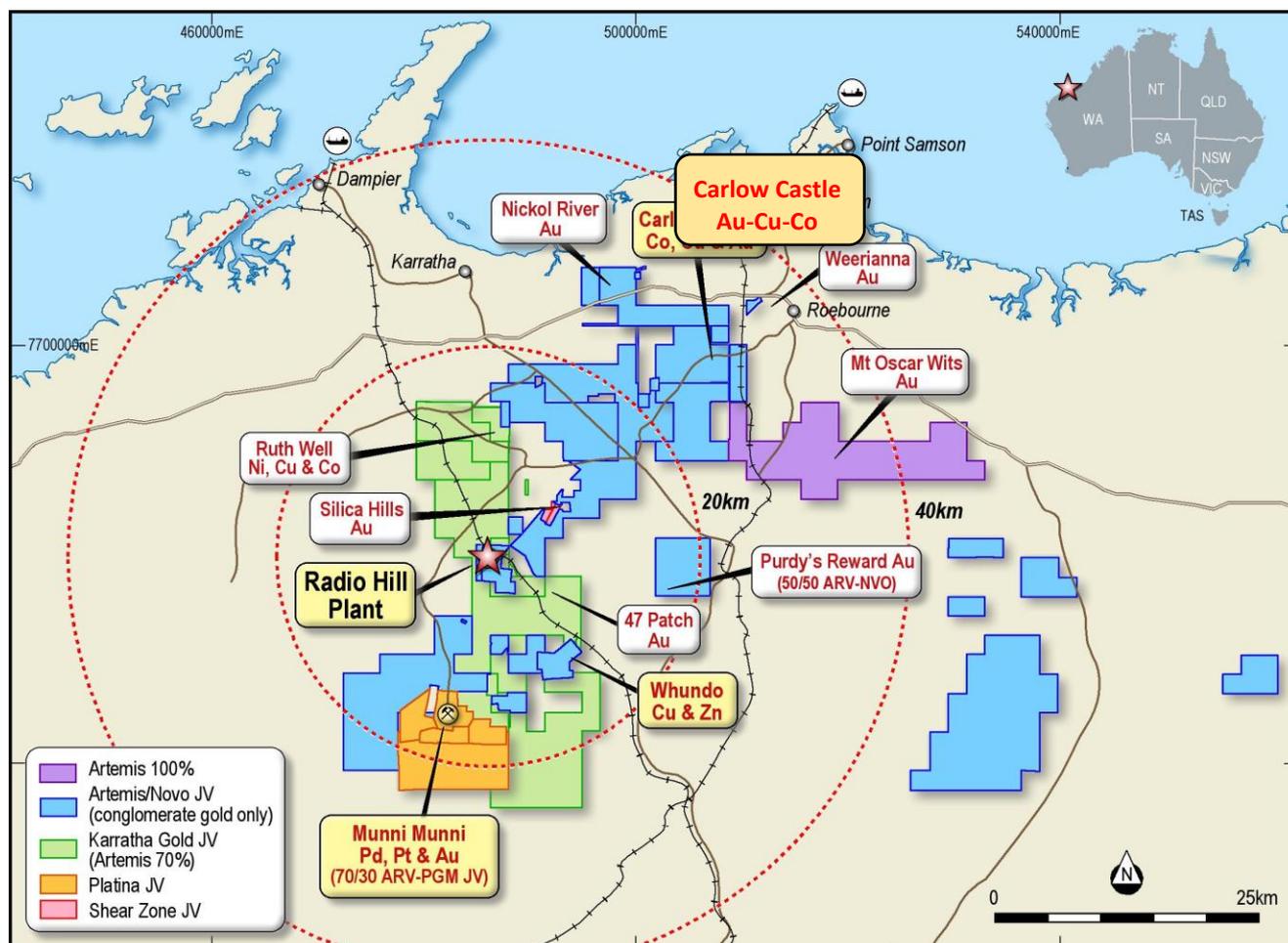
**Table 1: Carlow Castle Inferred Resource, reported at 0.3% Cu cut-off (numbers have been rounded to nearest 100 kt).**

Type	Inferred				Total			
	Tonnes kt	Cu %	Au ppm	Co ppm	Tonnes kt	Cu kt	Au koz	Co kt
Fresh	5,100	0.6	2.1	0.10	5,100	32	353	5
Oxide	2,800	0.6	0.7	0.05	2,800	17	65	2
<b>Total</b>	<b>8,000</b>	<b>0.6</b>	<b>1.6</b>	<b>0.08</b>	<b>8,000</b>	<b>48</b>	<b>418</b>	<b>7</b>

Commenting on the resource update, Artemis Resources Executive Director Ed Mead said:

*"The new Mineral Resource estimate including geological and structural models undertaken by independent consultants CSA Global has significantly increased metal tonnes giving the Artemis board confidence to move Carlow Castle towards scoping study and then feasibility. A small fully funded work program of infill drilling will be undertaken with the objective of allowing conversion of a part of the Mineral Resource Estimate to higher classification (Indicated) and to feed into a scoping study and financial model, prior to conducting a feasibility study. We are in the fortunate position of owning a processing plant just ~35 km from the deposit and we look forward to accelerating the project and taking full advantage of this."*

<sup>1</sup>The Company notes that it has materially updated its Mineral Resource since the last estimate provided to the market on 6 March 2019. The upgrade is based on newly acquired structural mapping of trenches and structural logging of diamond core.



**Figure 1: Carlow Castle Project Location Map. Blue shaded tenements are within the Conglomerate JV with Novo resources Corp, but Artemis retains 100% of all other styles of mineralisation and commodities**

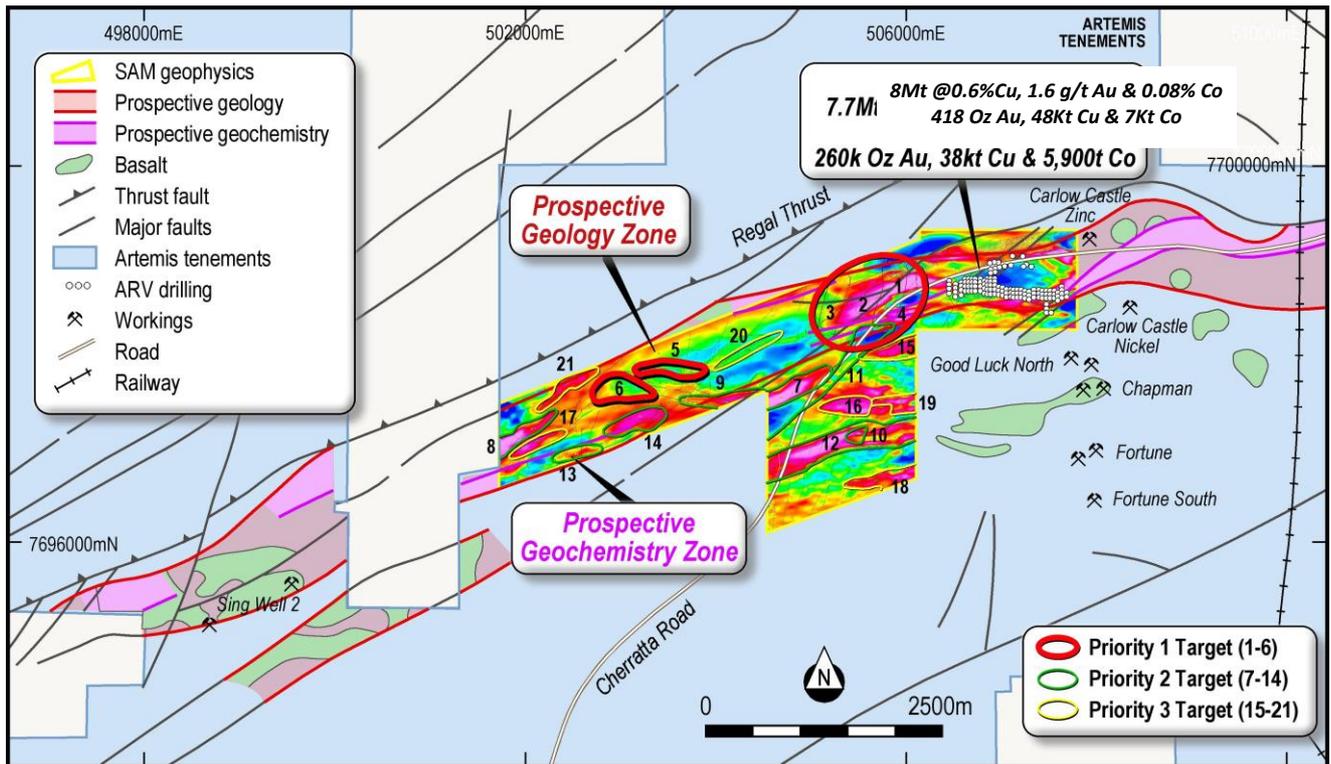
## CARLOW CASTLE GOLD AND COPPER PROJECT RESOURCE SUMMARY

The Carlow Castle gold and copper project is located in the West Pilbara region of Western Australia, ~45 km by road east of the city of Karrathra (**Figure 1**). Access is via the Northwest Coastal Highway and then by the unsealed Cheratta public road, which passes through the Project area. Carlow Castle is on the granted exploration license E47/1797 and is ~35 km from Artemis' 100% owned Radio Hill Processing Plant.

The current Carlow Castle Mineral Resource covers a strike length of 1.2 km, and was successfully identified using SAM exploration in early 2018. In conjunction with geochemical anomalies, SAM targeting drove the Carlow Castle drilling program in 2018 that increased the resource by 71% in February 2019, and subsequent SAM survey which has identified 21 new targets to the west of the current resource (Figure 2).

Recent Structural mapping and evaluation of historical diamond core and trenching through the top of the resource area, carried out in the last 2 months, has now led to a significant increase in the confidence levels of the project, and culminated in the new Mineral Resource estimate (MRE) that has increased metal content by 60% for gold, 25% for copper and 15% for cobalt. The structural mapping programs and MRE have been carried out by independent Mining Industry Consultants, CSA Global.

A work program planned to increase the confidence in the Mineral Resources includes an infill diamond drilling campaign for structural and geotechnical logging, and assaying of a select number of stored assay pulps for acid soluble copper. The work program is expected to enable a detailed scoping study and financial model.



**Figure 2: Carlow Castle Geology, SAM survey results with 21 anomalies, drilling and resource area to date, which indicates mineralisation is open to the west and east.**

**Table 2: Summary List of Drill holes at Carlow Castle**

Series		Count	Type	Metres	Year
ARC001	ARC034	34	RC	2,426	2017
ARC036	ARC081	47	RC	4,942	2017
ARC082	ARC101	20	RC	2,522	2018
18CCAD001	18CCAD012	12	DDH	1,504.6	2018
ARC101	ARC189	88	RC	13,313	2018
<b>Subtotal</b>		<b>201</b>		<b>24,721.6</b>	
<b>Total</b>		<b>278</b>		<b>29,604.3</b>	

### GEOLGY AND GEOLOGICAL AND STRUCTURAL INTERPRETATION

A total of 188 Reverse Circulation (RC) drill holes and 12 diamond drill holes for 24,721.6 metres were completed by Artemis between March 2017 and August 2018. Drilling on a nominal 40 metres by 20 metres grid (X by Y), testing depth extent of ore zones at Carlow Castle. Historical drilling results (mainly RC) completed by previous explorers have not been included in the current MRE (Table 2).

The structural study undertaken by CSA Global was aimed at recognising any structurally controlled sub-trends within the broader east-west orientation of the Carlow Castle gold-copper-cobalt mineralisation to assist with the MRE and potential further exploration activities.

Existing structural data from nine oriented diamond drillholes was examined in relation to the distribution of copper-gold mineralisation, along with new data collected from a series of trenches and supplementary observations and measurements from the oriented drill core. The outcome confirms that the continuity of mineralisation does follow structural sub-trends within a broader east-west shear zone.

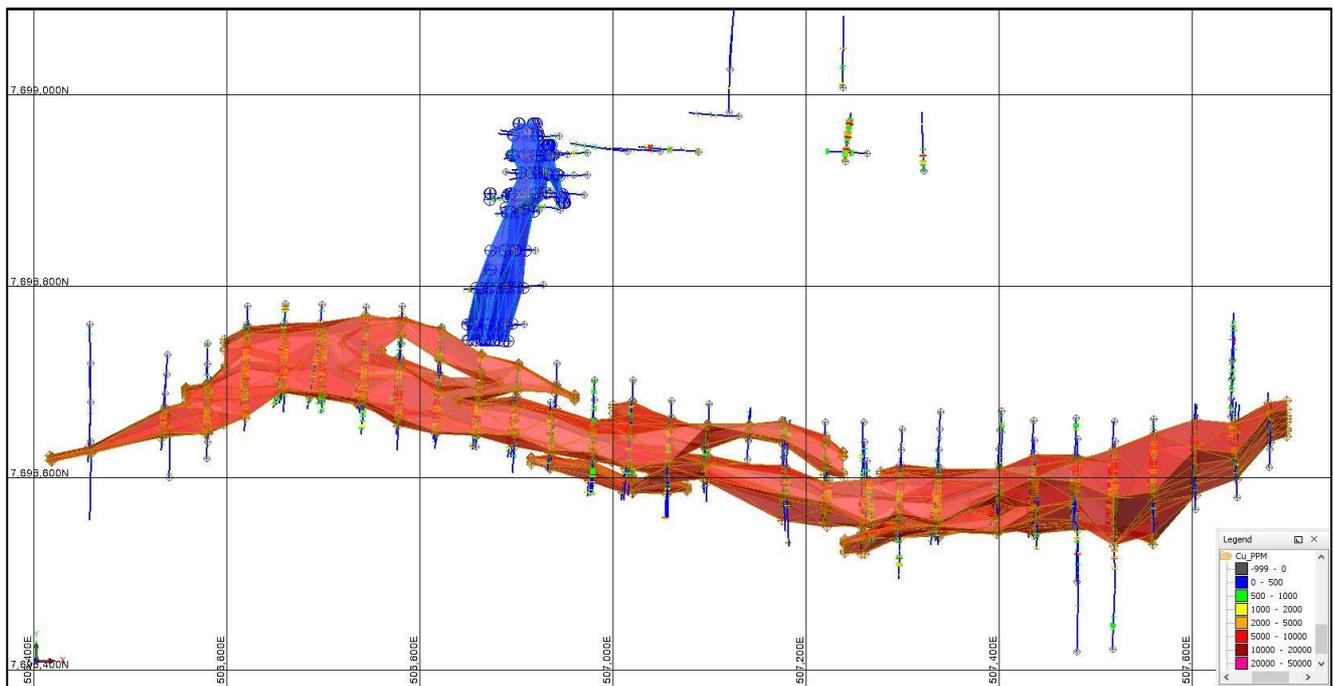
Based on the data examined, the primary structural control on ore shoots are:

- Flexure/crenulation of the shear fabric in the hosting shear zone:
  - Higher copper and gold grades are focused around the steep-south dipping limb of a subtle crenulation or flexure of the shear fabric
  - The axial plane of the crenulation appears to dip to the northeast, and the axis plunges shallowly to the east controlling the geometry of the ore shoots within the shear zone, particularly in Carlow Castle West
  - Estimated crenulation axial plane: 28° towards 046°
- Intersection between the shear planes and the shear schistosity appears to control veining and high copper-gold grades in Carlow Castle East along with the crenulation of the shear zone.

Secondary structural control of ore shoots:

- Thickness and frequency of veins formed sub-parallel to the shear planes and shear schistosity.

The structurally controlled ore zones at Carlow consist of chalcopyrite, chalcocite, cobaltite, pyrite and gold within shears and brecciated zones noted above, within the host basalt. Minor tellurobismuthite, hessite and uraninite also occur.



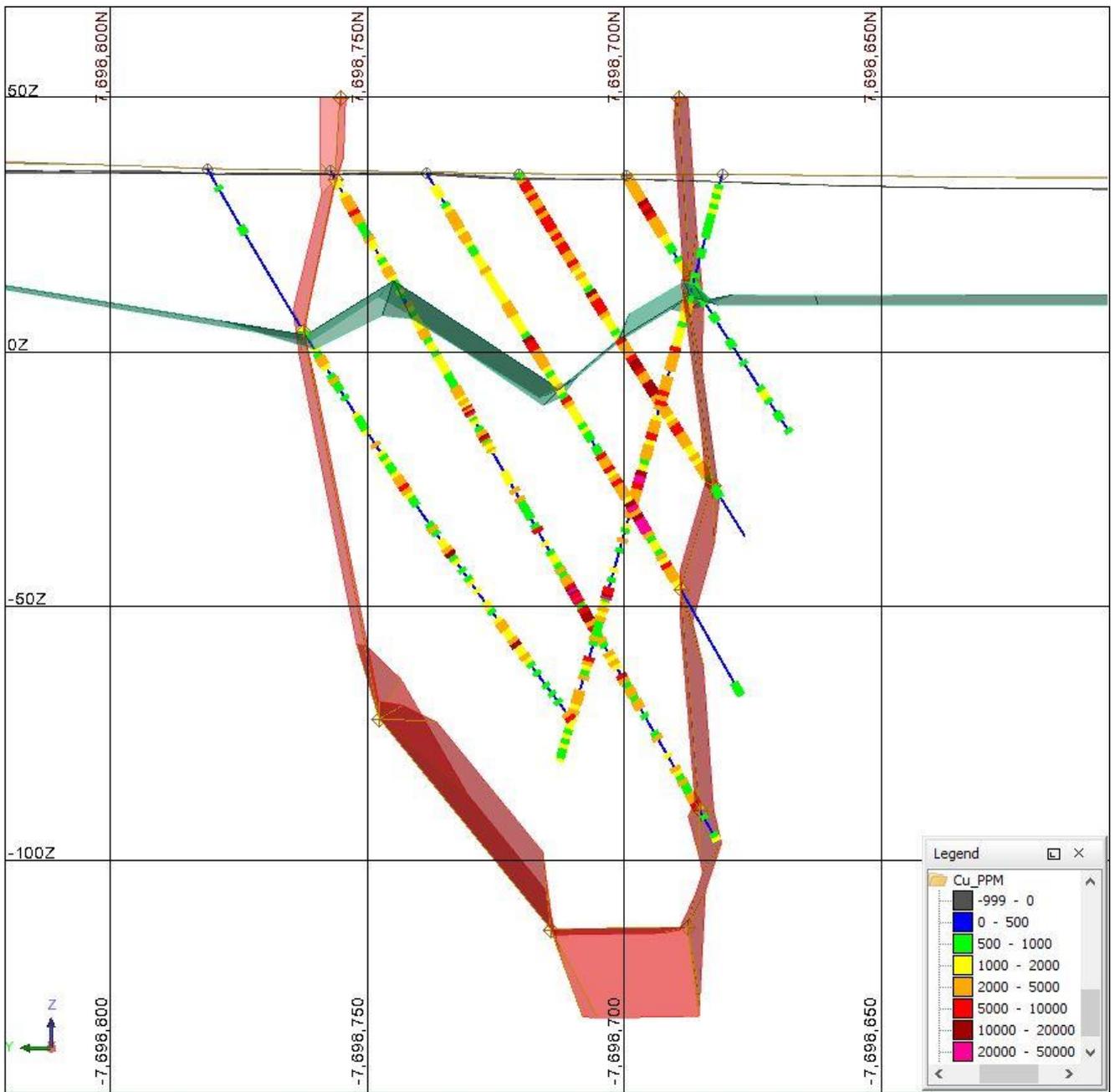
**Figure 3: Plan view of the interpreted mineralisation wireframe showing drillhole by Cu ppm.** Drillholes coloured by Cu ppm ranges: blue = 0–500; green = 500–1,000; yellow = 1,000–2,000; orange = 2,000–5,000; red = 5,000–10,000; dark red/brown = 10,000–20,000; magenta = 20,000+. Wireframe colours: red = Carlow Main mineralisation; blue = Quod Est mineralisation.

### DRILLING INFORMING THE CARLOW CASTLE PROJECT MINERAL RESOURCE ESTIMATE.

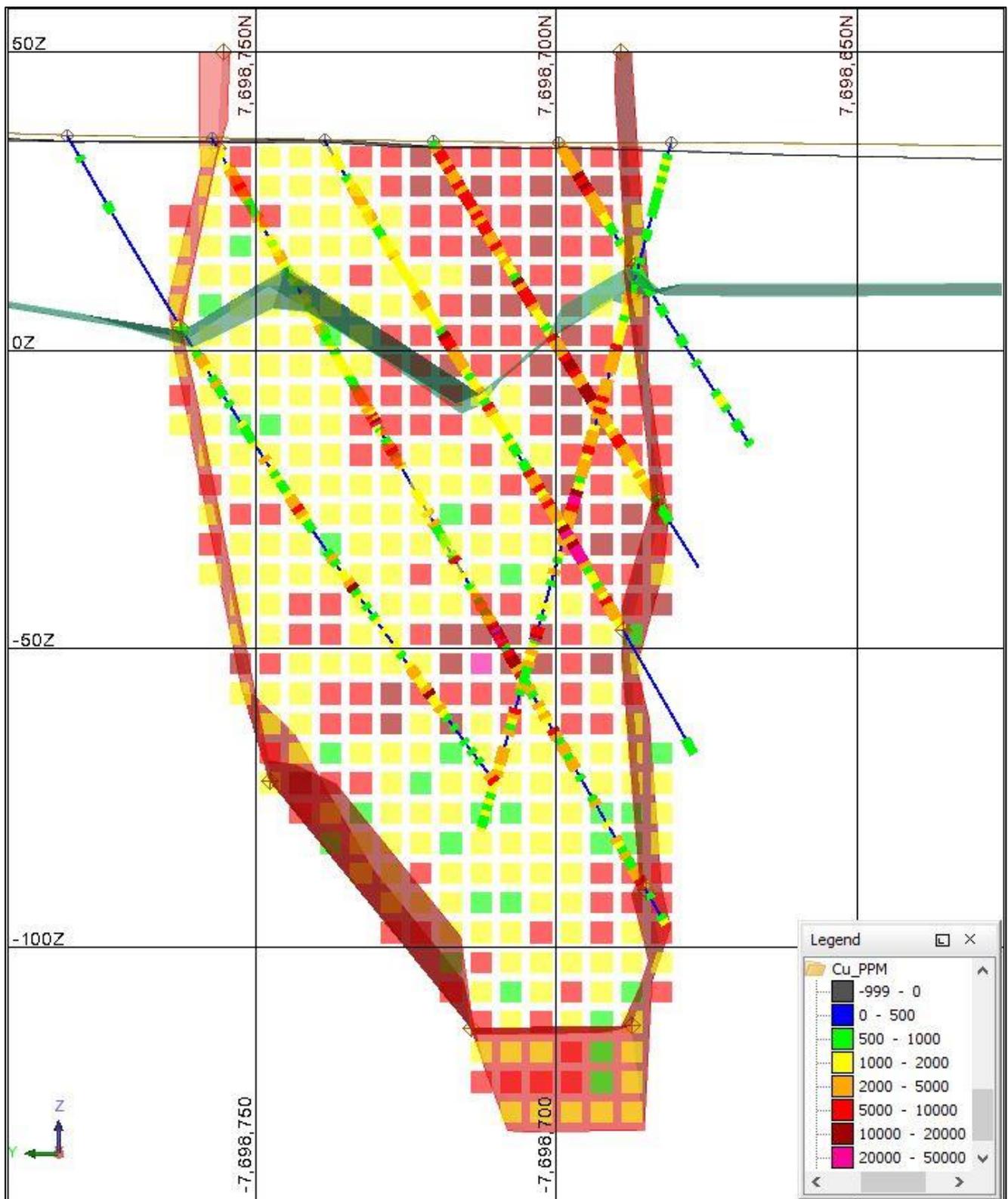
Drilling methods used at Carlow Castle for the MRE include:

- Diamond drilling
- RC drilling

Only Artemis drill data has been used in the new MRE, with Table 2 listing all known drilling at the Carlow Castle Project to date and Figure 3 depicting a location plan of all Artemis drilling. Figures 4 and 5 from the current MRE represent drill holes, wireframes and SMU model estimates for copper, which has formed the basis of the generation of wireframes.



**Figure 4: Example 20 m thick section at 506,700 mE through interpreted Carlow Main mineralisation lode and geological features.** Drillholes coloured by Cu ppm ranges: blue = 0–500; green = 500–1,000; yellow = 1,000–2,000; orange = 2,000–5,000; red = 5,000–10,000; dark red/brown = 10,000–20,000; magenta = 20,000+. Wireframe colours: red = Carlow Main mineralisation; gold = topographic surface; black = overburden surface; green = top of fresh surface.



**Figure 5: Example 20 m thick section at 506,700 mE through interpreted Carlow Main mineralisation lode, geological features and SMU model copper estimates. Drillholes coloured by Cu ppm ranges: blue = 0–500; green = 500–1,000; yellow = 1,000–2,000; orange = 2,000–5,000; red = 5,000–10,000; dark red/brown = 10,000–20,000; magenta = 20,000+. Wireframe colours: red = Carlow Main mineralisation; gold = topographic surface; black = overburden surface; green = top of fresh surface.**

## **SAMPLING AND ASSAYING**

RC drilling was completed using a truck-mounted Schramm 685 RC drilling rig with a 5¼ inch (13 cm) diameter face sampling hammer. The drill chips were split using a rig mounted cyclone and static cone splitter over one metre intervals to obtain 2 to 4 kilogram sub-samples to be dispatched to the laboratory for multi-element analysis including Au, Cu, Co, As, Ag, and S.

A field geologist supervised all the drilling and logged the drill samples for lithologies, weathering, alteration and mineralisation. Reference samples were collected for each metre and stored in chip trays for future reference.

Sample recoveries were recorded by the geologist in the field during logging and sampling. If poor sample recoveries were encountered during drilling, the supervising geologist and driller endeavoured to rectify the problem to ensure maximum sample recovery.

The majority of samples were dry. Where moisture affected samples, the cleanliness of the cyclone and splitter was closely monitored by the supervising geologist and maintained to a satisfactory level to avoid contamination and ensure representative samples were being collected.

The down-hole intervals logged by the geologist as being mineralised or showing significant alteration were sampled and assayed at 1 m intervals. Compositing of samples occurred for holes ARC036 to ARC081 only. All unmineralised intervals (based on the field portable XRF readings for Cu, Co and As) were composited and assayed over 3 m intervals. Mineralised intervals based on the field XRF readings were assayed in 1 m intervals.

If a 3 m composite returned assays above normal background levels these intervals were re-sampled and assayed over 1 m intervals.

Field duplicates in the form of a second split from the static cone splitter were taken every 20<sup>th</sup> sample with standard reference samples and blanks inserted on a rotational basis every 20<sup>th</sup> sample to monitor the quality control of the sampling and chemical analyses.

The HQ3 diamond drilling was completed using a truck mounted Evolution FH3000 Diamond Drill. The core was logged by the site geologist with core recoveries, lithologies, alteration type and intensity, mineralogy's and fractures/structures recorded. All the diamond core was cut by trained technicians along the long-axis using a diamond saw between intervals marked up by the geologist. The sampling intervals were nominally 1.0 m adjusted to match lithological/mineralisation boundaries.

## **Topography and Surveying**

A topographic surface used for coding the block model was built from drillhole collars, with the outer limits extended by visual best fit from the nearest holes. The Competent Person considers that the surface is suitable for this Mineral Resource estimate, as the area above and proximal to the Mineral Resource is topographically flat.

A hand-held GPS was used to position the drill hole collars prior to drilling. The collars of all the completed holes were subsequently picked up with DGPS with an accuracy of within 1 cm. The grid system used for all Artemis drilling is GDA94 (MGA 94 Zone 50).

## **SAMPLE SECURITY, PREPARATION, AND ANALYSIS**

In the first two RC drilling phases five samples were bagged into poly-weave sacks, labelled, then loaded on a vehicle and taken to the transport depot where they were shrink wrapped to pallets and delivered directly to the laboratory.

In the second two RC drilling phases five samples were bagged into poly-weave sacks and then loaded directly into a bulk bag, each hole was placed in a separate bag, at the end of each day a Hiab equipped truck would collect the labelled bulk bags and deliver direct to the transport depot. These were loaded directly onto the truck and delivered direct to the laboratory. Each bulk bag or hole had a separate sample dispatch and became a separate analytical batch in the laboratory.

The Artemis drill samples were submitted to the laboratory for multi-element analysis including: Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Sc, Sr, Th, Ti, Tl, U, V, W, Zn. All the analyses were carried out by an independent laboratory, ALS Global (Perth) - 26 Rigali Way, Wangara Western Australia 6065.

After the samples were dried, samples received at the lab weighing more than 3 kg were riffle split. The samples were then pulverised to 95% passing 75 microns.

- The gold was analysed with the 50 gram Fire Assay (Au-AA26) with atomic absorption spectroscopy finish.
- Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Sc, Sr, Th, Ti, Tl, U, V, W, Zn were routinely analysed using Acid Digest ICP-AES Finish (ME-ICP61).
- Higher ore grade samples were analysed with 4 Acid Digest ICP-AES Finish (MEOG62).

All diamond core samples were processed through the same regime with standard reference samples inserted every 20<sup>th</sup> sample.

### **Quality Control Data**

Standards, duplicates and blanks were used for QA/QC checks by Artemis. Standards and blanks were inserted into the sample stream as every 20<sup>th</sup> sample and riffle split duplicate samples were collected at every 20<sup>th</sup> sample.

A total of 1,169 samples were duplicated in the field and 1,270 blanks and standard reference samples were inserted by Artemis into the drill sample batches. Field duplicates were not included for diamond core.

Gold assays show a broader scatter within the duplicate samples than the Copper and Cobalt whose majority of samples fall within a +/-10% range. The Bias ratio = duplicate/original assay.

Internal Reference Materials (IRMs) reflect the expected values of Cu and Au relatively well (suitably accurate), though precision would be considered poor, and homogenisation of the IRMs requires addressing.

### **Bulk Density**

A total of 117,859 density measurements were collected from the Artemis drill holes using a downhole gamma/calliper/density/resistivity logger by Wireline Services Group. Of these measurements, 26,237 were within the resource wireframes. The average density of the weathered mineralised measurements was 2.5, while the fresh mineralised samples averaged 2.9.

The down-hole densities were interpolated into the model using the same search parameters as the assays.

### **Downhole surveys**

The first phase drill holes (ARV001 to ARC034) were surveyed using a north seeking magnetic camera; subsequently all holes were surveyed at 30 m intervals using gyroscopic equipment to overcome the effects of any magnetic minerals that are probable in the mafic/ultramafic country rocks.

All accessible holes of the first phase of drilling were also re-surveyed using the gyroscopic equipment. When holes seemed to show excessive deviation from the gyroscopic survey, they were re-surveyed by a third party in association with the downhole density logging. All suspect deviations were confirmed to be valid.

### **CRITERIA USED FOR CLASSIFICATION**

CSA Global has classified the Mineral Resource as Inferred on the following basis:

- The resource is drilled on a relatively close spaced pattern, nominally 40 by 20 m line spacing and a nominal 25 m down-dip spacing.
- The majority of the drilling is RC drilling, with 9 diamond drill holes in the west of the resource.
- The mineralisation is interpreted as being predominantly structurally controlled and occurs as veins, stockworks, breccias, with an overprinted mylonite unit.

## ESTIMATION METHODOLOGY

The Carlow Castle Main lodes have been interpreted as a set of anastomosing fingers extending off and conjoining a major central lens that follows a broad, sigmoidal curve whose centre-line at 7,698,660 mN strikes east-west, being fault terminated at each end for a strike-length of 1,200 m. The anastomosing lodes vary in thickness from 5 m where they pinch to a thickest point of 90 m. Overall, the lodes relatively consistently average 40–50 m.

At the western end, mineralisation dips steeply north, at the eastern end, east of 507,640 mE, the mineralisation dips steeply south. Mineralisation in Carlow Castle has been interpreted to a maximum of 320 m below surface, averaging 170 m.

The Quod Est portion has been interpreted as two lodes dipping steeply east. The major lode outcrops and strikes NNE, bifurcates at its southern third, and measures about 200 m overall, with a relatively consistent average depth of 75 m for a range of 55–95 m. The minor lode strikes NNW with a length measuring 60 m, width up to 10 m, averaging 3 m, and a depth of 110 m.

The Mineral Resources were estimated within two estimation domains, representing Carlow Castle Main and Quod Est, formed from the mineralisation model interpreted at a nominal cut-off of 2,000 ppm Cu. The domains were further split into overburden, oxide and fresh by the oxidation wireframes.

All geological modelling was undertaken using Surpac software.

Statistics, grade and density estimates, and variography, were undertaken in Isatis and Supervisor software, and composite selection and block coding, undertaken in Surpac software, used the combined domains as hard boundaries.

Samples were composited to 1 m intervals based on assessment of the raw drillhole sample interval lengths.

Quantitative Kriging Neighbourhood Analysis (QKNA) was undertaken using Supervisor and Isatis software to assess the effect of changing key kriging neighbourhood parameters on block grade and density estimates. Kriging Efficiency and Slope of Regression were determined for a range of block sizes, minimum and maximum samples, search dimensions and discretisation grids. A two-pass search ellipse strategy was adopted, whereby the first pass equated to the full range of the relevant variogram model for each domain, with a minimum of 6 samples, maximum of 20 samples and a maximum of 3 samples per hole. The second pass search ellipse was double the variogram model range, with a minimum of 6 samples, maximum of 20 samples and a maximum of 3 samples per hole. All blocks were filled in the first two passes.

Final block grades at SMU support were derived via Localised Uniform Conditioning based on grade estimates from Panels of larger dimensions. For the estimate of Panel grades, a maximum distance of 10 m was applied to very high-grade values to limit their influence on estimates. These values, determined by statistical analysis including review of CV values, histograms, log-probability plots and mean-variance plots, were 60,000 g/t Cu, 40 g/t Au, 15,000 g/t Co, 20,000 g/t As and 100,000 g/t S for Carlow Main (oxide and fresh), and 40,000 g/t Cu, 20 g/t Au, 20,000 g/t Co, 20,000 g/t As and 80,000 g/t S for Quod Est (oxide and fresh).

A 20 mE x 10 mN x 20 mRL panel size was constructed covering the full volume of the mineralisation and additional space for mine infrastructure planning. No sub-celling was employed, instead the proportion of each block within mineralised wireframes and below the topographic surface was calculated into a block field.

Blocks with a very low proportion (<0.1%) in mineralisation on the fringes of the wireframes had grades set to zero.

High grade cuts were used to constrain outliers in the dataset as described above.

From the panel estimate produced via ordinary kriging, a local change of support was applied through Uniform Conditioning (UC) for each of the variables under consideration (Cu, Au, Co, As and S). Change of support was applied with the assumption of a selective mining unit (SMU) of dimensions 10 m x 5 m x 5 m (X by Y by Z). Tonnages and grades were adjusted proportionally during UC for Panels that were not proportionally wholly mineralisation. The UC estimate was further post-processed to provide a localised estimate of grade for individual SMUs within the final model. Panel estimation, change of support and post-processing localisation were undertaken using Isatis software, with the final localised SMU model exported to Surpac.

## Cut-off Grades

To better address the polymetallic character of Carlow Castle, a pit shell optimisation was completed using Whittle™ software, rather than choosing fixed cut-off grades based on single commodities or metal equivalents.

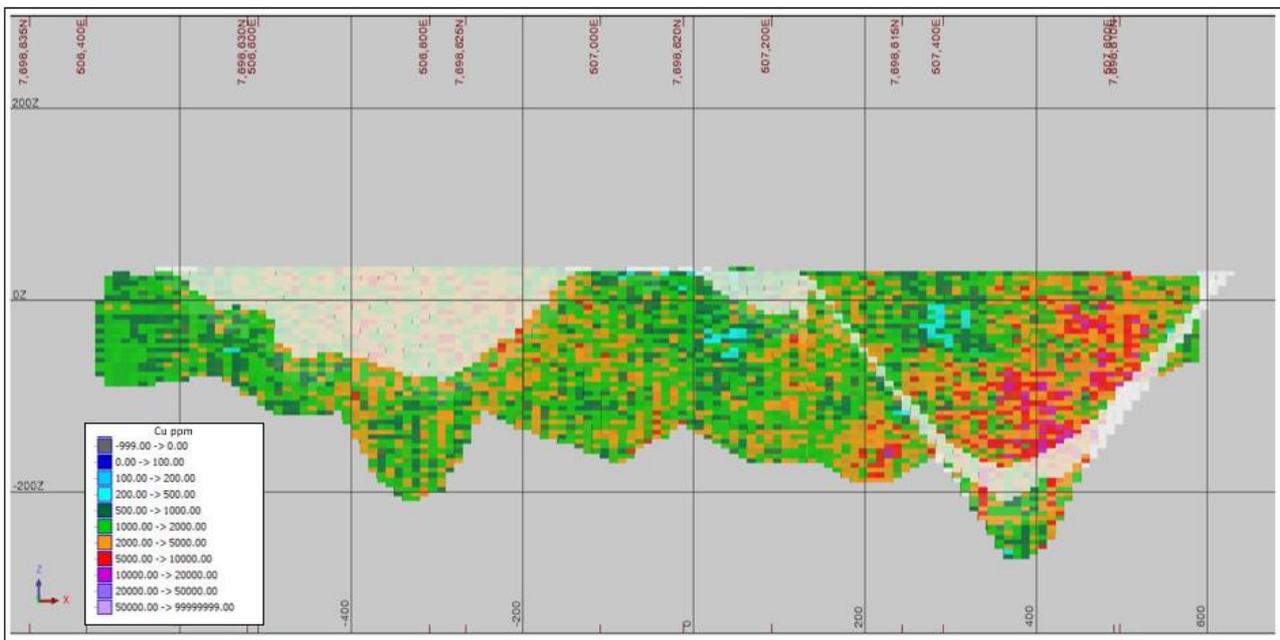
This approach provides a more quantitative assessment of reasonable prospects for eventual economic extraction, and informs the reporting of an updated Mineral Resource estimate for Carlow Castle. A set of optimisation parameters were selected, which in CSA Global’s professional opinion were appropriate to constrain an Inferred Mineral Resource; these included metal prices, pit wall angle, and mining costs.

Figures 6 and 7 show the resource block model and optimisation shell and shows high-grade zones in Carlow West and East.

The outputs of this optimisation exercise will now guide the next phase of work at Carlow Castle, which will include:

- diamond drill holes targeting the known high-grade zones; and
- assays of selected stored pulps within the Mineral Resource for acid-soluble copper.

The aim of the work program is to provide opportunity to upgrade a portion of the Mineral Resource to Indicated, and to allow a scoping study and financial model before the company commits to a feasibility study.



**Figure 6: Block model by copper grades for the Carlow East and Carlow West zones (Quod Est not displayed), and pit optimisation (in white) looking north, above which Mineral Resources were reported.**

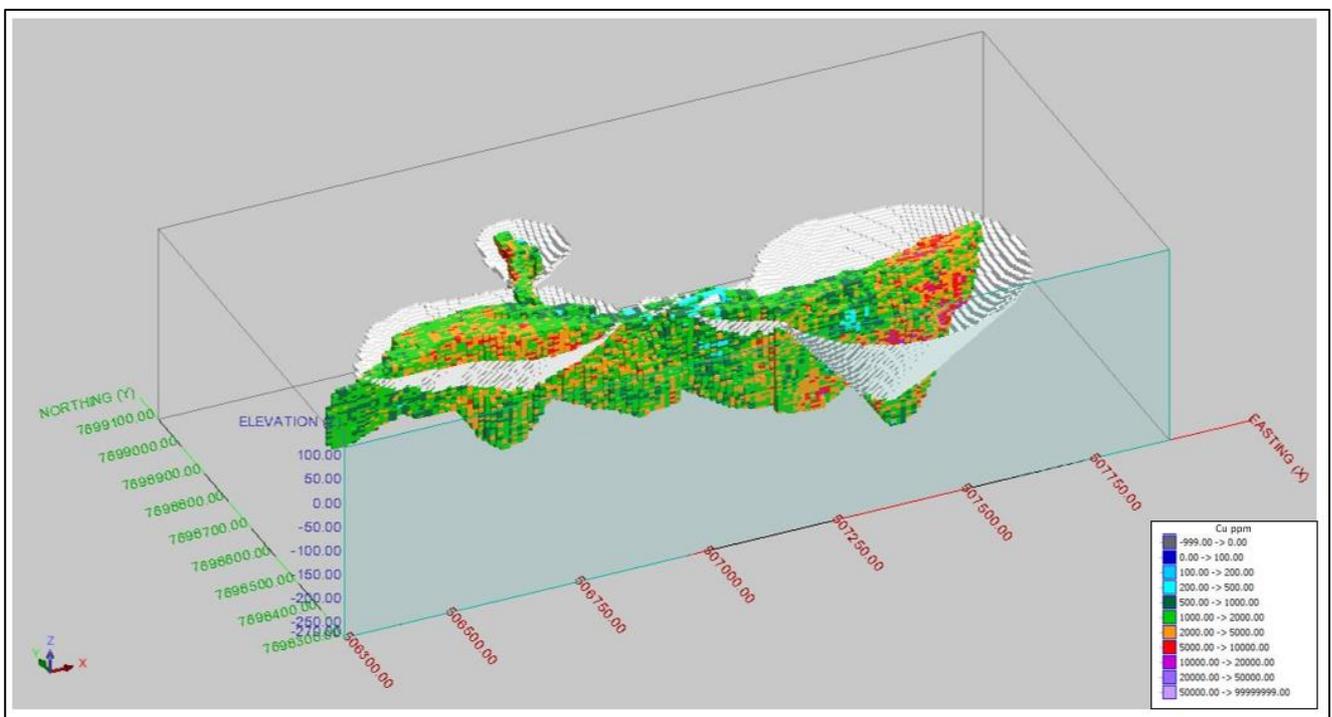
## Mining and Metallurgical Factors

Open pit mining is considered as the appropriate method for future studies, and the Competent Person believes that there are reasonable prospects for eventual economic extraction based on the outputs of the Whittle optimisation.

Artemis has completed preliminary metallurgical testwork on the project focussing on the metallurgical amenability of selected samples from the Carlow Castle deposit employing conventional gravity gold, cyanide leach and flotation processes.

- Gold: 48% of gold by testwork on metallurgical samples was recovered using gravity separation, and most of the balance of the non-gravity gold is recoverable in sulphide concentrates as a by-product using standard flotation.
- Copper: Quick floating copper minerals produced a high-grade, premium copper concentrate of approximately 30% Cu. Deleterious elements including arsenic may be managed with a light concentrate polishing using regrind or blend control. Recoveries depended on mineralogy, with 77–85% copper recoveries achieved. Unrecovered copper minerals are predominantly represented by non-floating silicates or secondary oxide copper minerals.
- Cobalt: Cobalt recoveries ranged from 73–79%. Saleable Cobalt concentrate grades ranging 2.3–5.3% Co were produced. Cobaltite (CoAsS) is the dominant cobalt bearing mineral and is therefore intrinsically linked to arsenic affecting its sale price.

Artemis (2019) believe the gold recovered by metallurgical testwork could be sold in concentrates as a credit or recovered on site using a cyanide leach process, while testwork continues to improve cobalt concentrate grades and ultimately aims to maintain optimal recovery and reduce shipping/smelter treatment charges.



**Figure 7: Oblique view of the block model showing copper grades looking northeast, and the pit optimisation shells (in white) above which Mineral Resources were reported for Carlow East, Carlow West and Quod Est.**

### Future Work

As a result of the positive Mineral Resource update, Artemis has already commenced plans designed to increase the confidence in the Mineral Resources, which include:

- Selection of acid-soluble copper assays from pulps to determine the residual copper available in the oxide material
- Infill drill hole planning targeted on the high-grade zones

ENDS



### **COMPETENT PERSONS STATEMENT**

Information in this document that relates to Estimation and Reporting of Mineral Resources for the Carlow-Castle deposit is based on information compiled by Dr Matthew Cobb, who is a Member of the Australian Institute of Geoscientists. Dr Cobb is employed as a Principal Geologist and is a full-time employee of CSA Global. Dr Cobb has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as Competent Persons as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Dr Cobb consent to the inclusion in the report of the matters based on their information in the form and context in which it appears.

### **FORWARD LOOKING STATEMENTS AND IMPORTANT NOTICE**

This report contains forecasts, projections and forward-looking information. Although the Company believes that its expectations, estimates and forecast outcomes are based on reasonable assumptions it can give no assurance that these will be achieved. Expectations and estimates and projections and information provided by the Company are not a guarantee of future performance and involve unknown risks and uncertainties, many of which are out of Artemis' control.

Actual results and developments will almost certainly differ materially from those expressed or implied. Artemis has not audited or investigated the accuracy or completeness of the information, statements and opinions contained in this announcement. To the maximum extent permitted by applicable laws, Artemis makes no representation and can give no assurance, guarantee or warranty, express or implied, as to, and takes no responsibility and assumes no liability for the authenticity, validity, accuracy, suitability or completeness of, or any errors in or omission from, any information, statement or opinion contained in this report and without prejudice, to the generality of the foregoing, the achievement or accuracy of any forecasts, projections or other forward looking information contained or referred to in this report.

Investors should make and rely upon their own enquiries before deciding to acquire or deal in the Company's securities.

## JORC Table 1 Section 1 – Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
<b>Sampling techniques</b>	<i>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 downhole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.</i>	Sampling consisted of reverse circulation (RC) and ¼ core HQ3 sized diamond samples.  Geophysical data, including gamma, density, resistivity and hole calliper, were collected downhole by Wireline Services Group (WSG) using industry standard, calibrated tools.
	<i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i>	The entire RC and diamond drilling sample was extracted prior to subsampling at surface next to the rig. Diamond and RC field duplicates were taken on selected intervals within the interpreted mineralised horizons to measure representativity of sample splits.
	<i>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</i>	1 m RC samples comprised 20,122 m or 88.6%, HQ3 quarter core samples comprised 1,555 m or 6.8% ranging from 0.3 m – 1.6 m, of which 89% are 1 m length, and RC cone-split samples composited to 3 m (1,028 samples) or 4 m (6 samples) comprised 1,034 or 4.6% of the dataset.  Sample preparation consisted of coarse crushing a maximum of 3 kg of the submitted sample, pulverising to >85% passing 75 microns and homogenising the pulp.  The original assay technique used for copper and cobalt involving digesting a 0.25 g sample (by four acid digest) and ICP-AES finish.  Both 30 g and 50 g sample sizes were chosen for analysis of gold, with fire assay fusion and detection by atomic absorption spectrometry (AAS).
<b>Drilling techniques</b>	<i>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.).</i>	Drillhole data comprised 201 holes, consisting of 189 RC and 12 HQ3 diamond holes. Holes were drilled by TopDrill. RC by a Schramm TD685 rig and diamond by an Evolution FH3000 rig.  RC samples were collected using a face-sampling, 4.5-inch diameter bit via the inner return tube to a rig-mounted, Sandvik tri-cone splitter.  All diamond core was collected by HQ3 sized triple-splitter core barrels. Core was orientated by Reflex™ orientation tools
<b>Drill sample recovery</b>	<i>Method of recording and assessing core and chip sample recoveries and results assessed.</i>	CSA Global did not supervise previous drill programs, however Artemis have provided the following guidelines for drill sample recovery which CSA Global consider as adequate.  Sample recoveries were recorded by the field geologist in the field during logging and sampling. Cor recoveries were calculated based on nominal run lengths versus measured length of recovered core.  <ul style="list-style-type: none"> <li>• If poor sample recovery is encountered during drilling, the supervising geologist and driller endeavour to rectify the problem to ensure maximum and representative sample recovery.</li> <li>• Visual assessments by a field geologist were made for moisture, and possible contamination. Minor damp samples were encountered, and the field geologist and driller ensured cleanliness of cyclone and splitter was maintained.</li> <li>• A cyclone and static cone splitter were used to ensure representative sampling and were routinely inspected and cleaned.</li> </ul>

Criteria	JORC Code explanation	Commentary
		<ul style="list-style-type: none"> <li>• Sample recoveries during drilling completed by Artemis were high, and almost all samples were dry.</li> </ul>
	<p><i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i></p>	<p>Triple-tube HQ core drilling was completed to maximise diamond core recoveries.</p> <p>Diamond drilling was completed to assist in validating the results from the RC samples and no identifiable bias was observed.</p> <p>Twin hole analysis showed good correlation between diamond and RC holes analysed.</p>
	<p><i>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.</i></p>	<p>No relationship between sample recovery and grade has been analysed, but anecdotal evidence suggests none is present.</p>
<b>Logging</b>	<p><i>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.</i></p>	<p>All RC and diamond drillholes were geologically logged to an industry standard appropriate for the mineralisation present at the project.</p> <p>All drill chip samples were geologically logged at 1 m intervals from surface to the bottom of each drillhole.</p> <p>Diamond core was photographed, and RC chips were retained in chip trays for future reference.</p> <p>The Competent Person considers that the level of detail is sufficient for the reporting of Mineral Resource estimation.</p>
	<p><i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</i></p>	<p>Lithological logging is qualitative in nature. Logged intervals were compared to the quantitative geochemical analyses and geophysical logging to validate the logging.</p> <p>Quantitative logging was provided by downhole geophysical density completed on 156 of 201 holes, averaging 75% of the total hole depth, by WSG in open holes within two months of the completion of drilling.</p> <p>The Competent Person considers that the availability of qualitative and quantitative logging has appropriately informed the geological modelling, including weathering and oxidation, water table level and rock type.</p>
	<p><i>The total length and percentage of the relevant intersections logged.</i></p>	<p>The total length of all drilling was geologically logged, and an average of 75% of the total hole depth was quantitatively logged for geophysical responses by WSG.</p>
<b>Subsampling techniques and sample preparation</b>	<p><i>If core, whether cut or sawn and whether quarter, half or all core taken.</i></p>	<p>Diamond core was cut into two quarters and one half using a diamond core saw. One of the quarters was placed into a numbered calico bag, which was tied and placed in a plastic/polyweave bags.</p>

Criteria	JORC Code explanation	Commentary
	<i>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</i>	RC samples were collected via a rig-mounted, Sandvik tri-cone splitter to yield sub samples of approximately 3 kg from a 1 m sample length.
	<i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i>	The Competent Person considers these methods appropriate for this style of mineralisation.
	<i>Quality control procedures adopted for all subsampling stages to maximise representivity of samples.</i>	<p>RC field duplicates numbered 1,169 (no diamond duplicates), and reference materials (IRMs) and blank samples numbered 1,270, which were inserted with primary samples at the rate of approximately one standard, blank or duplicate in every 10 samples.</p> <p>Of 13 IRMs inserted by Artemis, six (IDs “A” – “F”), were of significant numbers and were partially matched with the mineralisation types and matrices (matrix matched) of materials comprising the Mineral Resources. The Competent Person considers these IRMs to have been produced under a rigorous methodology.</p> <p>Campaign-based analysis and reporting of quality control (QC) data was undertaken of blanks, field duplicates, laboratory repeats, laboratory blanks, repeats and IRMs in several groups of batches, and as a project-wide group of all results.</p> <p>Laboratory duplicate checks (coarse crush duplicates and pulp duplicates) numbered 3,862, which represents duplication of 17% of the total dataset. Repeatability between duplicate pairs was very high.</p> <p>Gold assays show a broader scatter within the duplicate samples than the Copper and Cobalt whose majority of samples fall within a +/-10% range. The Bias ratio = duplicate/original assay.</p> <p>Internal Reference Materials (IRMs) reflect the expected values of Cu and Au relatively well (suitably accurate), though precision would be considered poor, and homogenisation of the IRMs requires addressing.</p>
	<i>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.</i>	<p>Artemis inserted field duplicates to monitor sampling precision.</p> <p>Downhole geophysical data were collected within two months of the drilling for both 2017 and 2018 drilling campaigns by WSG in open holes.</p>
	<i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i>	Sample sizes are considered to be appropriate to the grain size of the material being sampled.

Criteria	JORC Code explanation	Commentary
<b>Quality of assay data and laboratory tests</b>	<i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i>	<p>All 22,711 primary samples were assayed by ALS in Perth, which is a National Association of Testing Authorities (NATA) Australia accredited organisation.</p> <p>The original assay technique used for copper and cobalt was 0.25 g sample with four acid digest and ICP-AES finish. When the upper limits of the range recommended by the lab were exceeded, a method more appropriate method was used to re-assay another sample of the pulp. For assays that reached the limits of 1% for the 30 g, the laboratory method ME-ICP61A was triggered, using 0.40 g samples with the same liberation and finish techniques.</p> <p>For some samples, the sample grades did not exceed the upper limit of the ME-ICP61A, but a method with a higher upper limit, being Cu-OG62 for copper and Co-OG62 cobalt, was used to provide more confidence in the analyses.</p> <p>In order of decreasing preference, the methods loaded into the assay table of the database for use in the MRE were: Cu-OG62/Co-OG62; ME-ICP61A; ME-ICP61.</p> <p>Both 30 g and 50 g sample sizes were chosen for analysis of gold, with fire assay and determination by AAS. The limit of 100 g/t was not reached for any samples. The larger sample size of 50 g was predominantly selected to provide greater confidence in the analyses. CSA Global has no information on the Au-DIL26 method, however this method was not used on a significant proportion of assays.</p>
	<i>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.</i>	<p>The gamma signatures of selected drillholes were logged in counts-per-second (cps) by WSG. These wireline measurements were then converted to physical property values using calibrations determined specifically for each physical property parameter, which produced a density value based on the mineral assemblage's present.</p> <p>The data were provided in a column "density" in a database table as an average over 10 cm downhole spacings for 97% of the readings, 1 m for 3% of the readings and a single reading of 3 m. The gamma-density records numbered 117,859, of which 7,480 (6%) and 110,379 (94%) records are derived from diamond and RC holes respectively.</p>
	<i>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.</i>	The gamma-density readings were calibrated by logging of calibration material at the WSG facility prior to mobilisation to site.
<b>Verification of sampling and assaying</b>	<i>The verification of significant intersections by either independent or alternative company personnel.</i>	Senior Artemis geological staff collected and inspected the samples. On behalf of the Competent Person, Dr Matthew Cobb, Dr Jamie Robinson, Principal Consultant (structural geology), inspected several significant intersections of diamond core. The Competent Person considers that the information provided to him by colleague Dr Jamie Robinson allows him to appropriately consider the necessary factors in establishing Mineral Resources for the confidence estimated.
	<i>The use of twinned holes.</i>	Diamond holes were drilled to infill areas of RC holes, and diamond sample results showed strong correlation to the nearest RC sample results.
	<i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i>	The data entry, storage and documentation of primary data was completed on Microsoft Excel spreadsheets and local hard drives, then imported into a central database managed by CSA Global.
	<i>Discuss any adjustment to assay data.</i>	No adjustments or calibrations have been made to any assay data.

Criteria	JORC Code explanation	Commentary
<b>Location of data points</b>	<i>Accuracy and quality of surveys used to locate drillholes (collar and downhole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</i>	<p>All hole collars were surveyed by differential global positioning system (DGPS).</p> <p>Down-hole locations were predominantly surveyed by gyroscope, equating to 90% of the total metres surveyed. Gyroscope values in the database were recorded every 30 m, except diamond hole 18CCAD001, which includes records every 10 m. Holes were also surveyed by Reflex EZ Trac™ down-hole camera.</p> <p>Another unknown method (“UNK”) existed in the database for the survey records of the collar of RC holes ARC033 and ARC105, and another record of the latter at 66 m, both of which had no additional records. The maximum depths of these holes were 22 m and 66 m. The survey data for ARC033 derive from the planned hole azimuth and dip, and the survey data for ARC105 derive from DGPS collar survey measurement, which has been copied to the maximum depth.</p>
	<i>Specification of the grid system used.</i>	Topographic data were captured in GDA94 MGA Zone 50 grid system.
	<i>Quality and adequacy of topographic control.</i>	A topographic surface used for coding the block model was built from drillhole collars, with the outer limits extended by visual best fit from the nearest holes. The Competent Person considers that the surface is suitable for this Mineral Resource estimate, as the area above and proximal to the Mineral Resource is topographically flat.
<b>Data spacing and distribution</b>	<i>Data spacing for reporting of Exploration Results.</i>	<p>The mineralisation has been defined by two orthogonal drilling grids to intersect the east-striking Carlow Main lodes and north-striking Quod Est lodes. The southern boundary of the Quod Est drilling grid adjoins the northern boundary of the Carlow Main grid at its central-western area. Aside from minor mineralisation extension, infill drillholes and 17 interpretation-controlling scissor holes, drilling is regularly spaced 20 m apart on 40 m spaced sections, nominally averaging –60° dips, which has provided consistent support to intersections of mineralisation and eliminated any influence of hole angles on grade.</p> <p>Drillholes that define the Carlow Main mineralisation lie on 30 sections that shift homoscedastically north or south perpendicular to the sigmoidal curve that defines the mineralisation trend. Drillholes in the western-section of the Carlow Main lodes – the bulk of the defined mineralisation – have been drilled to the south to intersect the very steeply north-dipping lodes, until section 507,640 mE, where the holes have been drilled to the north to intersect the very steeply south-dipping lodes.</p> <p>Drilling into the Quod Est mineralisation has been intersected by east-west orientated holes lying on eight sections – two of which are infill sections – perpendicular to a central easting of 506,650 mE.</p>
	<i>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.</i>	The Competent Person believes the mineralised lenses have sufficient geological and grade continuity to support the classification applied to the Mineral Resources given the current drill pattern.
	<i>Whether sample compositing has been applied.</i>	The down-hole intervals logged by the geologist as being mineralised or showing significant alteration were sampled and assayed at 1 m intervals. Compositing of samples occurred for holes ARC036 to ARC081 only. All unmineralised intervals (based on the field portable XRF readings for Cu, Co and As) were composited and assayed over 3 m intervals.

Criteria	JORC Code explanation	Commentary
		<p>Mineralized intervals based on the field XRF readings were assayed in 1 m intervals.</p> <p>If a 3 m composite returned assays above normal background levels, these intervals were re-sampled and assayed over 1 m intervals.</p>
<b>Orientation of data in relation to geological structure</b>	<i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i>	The regular spaced drilling on consistent sections, and the orientations orthogonal to the strike of the lodes, has provided consistent support to intersections of mineralisation to and eliminated any bias or influence of hole angles on grades.
	<i>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.</i>	No relationship has been noted between drillhole orientation and mineralisation.
<b>Sample security</b>	<i>The measures taken to ensure sample security.</i>	<p>Samples were bagged, and cable tied upon collection. The chain of custody was managed by the supervising geologist, who placed up to 10 calico sample bags in polyweave sacks, clearly labelled with:</p> <ul style="list-style-type: none"> <li>• Artemis Resources Ltd</li> <li>• Address of laboratory</li> <li>• Sample range</li> </ul> <p>For the first drilling phase, samples were delivered by Artemis personnel to the transport company in Karratha and shrink wrapped onto pallets. The transport company then delivered the samples directly to the laboratory.</p> <p>Sample security was maintained through short (&lt;1 day) collection and delivery and the use of secured transport yards.</p> <p>In the second two RC drilling phases five samples were bagged into poly-weave sacks and then loaded directly into a bulk bag, each hole was placed in a separate bag, at the end of each day a Hiab equipped truck would collect the labelled bulk bags and deliver direct to the transport depot. These were loaded directly onto the truck and delivered direct to the laboratory. Each bulk bag or hole had a separate sample dispatch and became a separate analytical batch in the laboratory.</p> <p>The remote site within a low risk jurisdiction mitigated the risk of sample security being compromised.</p>
<b>Audits or reviews</b>	<i>The results of any audits or reviews of sampling techniques and data.</i>	No external audit of sampling techniques and data has been undertaken.

## JORC 2012 Table 1 Section 2 – Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
<b>Mineral tenement and land tenure status</b>	<i>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.</i>	<p>The project lies on tenement E47/1797-I, which is held by KML No. 2 Pty Ltd (KML), a 100% owned subsidiary of Artemis. The tenement was granted on 07/05/2008 and is held in good standing.</p> <p>According to the Department of Mines, Industry and Regulation (DMIRS) of WA Mineral Titles Online system, the tenement has an excised portion of land for the expired tenement M47/385 (DMIRS, 2019).</p> <p>The tenement is overlapped by two miscellaneous licences, granted tenement L47/416 held jointly by Stirling Bay Holdings and Swan Bay Holdings, and pending tenement L47/911 held by Welcome Exploration Pty Ltd.</p>
	<i>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.</i>	<p>The tenement is securely held by a 100% owned subsidiary of Artemis and there are no impediments preventing the operation of the Lease.</p>
<b>Exploration done by other parties</b>	<i>Acknowledgment and appraisal of exploration by other parties.</i>	<p>Prior to its name as Carlow Castle, the Project area was known first as Cooper's.</p> <p><b>Pre-1968</b></p> <p>As early as the 1870's, copper ore was mined at the area formerly known as Glenroebourne. Gold was discovered in the district in the late 1880's and numerous, small gold and gold-copper prospects, and minor silver, were worked to 1960. In the 1930's, the area was investigated by North Australian Aerial Geological, Geophysical Survey.</p> <p>In 1964, Westfield Minerals NL undertook extensive regional mapping and stream-soil sampling, and identified and drilled geochemical, magnetic and induced polarisation (IP) anomalies.</p> <p>The Geological Survey of Western Australia (GSWA) published a regional geology map in 1965.</p> <p><b>1968 – 1972</b></p> <p>In 1968, Consolidated Gold Mining Areas NL drilled seven DD holes for 759 over mining claims MC387 and MC410, which are now within E47/1797-I. The holes intersected mineralisation containing three main chalcopyrite veins ranging from 23 cm to 76 cm thickness and hosted up to 5.36% Cu, 17.14 g/t Au and 1.42% cobalt in separate 2 ft samples. Geophysical work was carried out to improve mineralisation targeting included magnetometer, self-potential and IP surveys.</p> <p>In 1969, in partnership with Roebourne Exploration and Mining Ltd, Amax commenced exploration of the area by 275 wide-spaced magnetometer survey lines and 141 line-miles of IP survey, 2,800 ft of auger drilling, 14,000 ft of percussion drilling, 2,800 ft of DD and 475 ft costean/trench. The details of the exploration program completed are unclear, as the financing arrangements only allowed for partial program completion. The trench revealed two vine structures of high-grade mineralisation, with 8 m @ 1.73% Cu and 14 m @ 2.2% Cu within a wide low-grade copper mineralisation halo grading 0.38% Cu that contained numerous anomalous gold and cobalt results. However, Amax's primary focus for the drilling program was targeting IP anomalies to the north of Carlow Castle that were coincident with a chert band formed from a felsic volcanic horizon that yielded 10 ft @ 2.5% zinc. The target was a stratiform zinc deposit, but instead the</p>

Criteria	JORC Code explanation	Commentary
		<p>source of the IP anomalies was identified as pyrite, and so Amax lost interest in the project area.</p> <p><b>1986 – Openpit Mining Ltd</b></p> <p>In a report for Artemis inserted into the annual report for the combined reporting group to the GSWA, Torbinup Resources Pty Ltd noted that Openpit Mining Ltd explored the known base metal mineralized areas for gold mineralisation in 1986 and 1987, which included detailed mapping of the main workings at Carlow Castle and the drilling of 31 RC holes for 1,527 m in the Carlow Castle, Good Luck and Little Fortune areas (Cahill, 2011, cited in Voermans, 2012). One hole, GC04 intercepted 22 m @ 10.7 g/t Au below the No 1 Lode, which included a 6 m interval of 30.97 g/t Au.</p> <p><b>1995 – 2008: Legend Mining Pty Ltd (&amp; others)</b></p> <p>The following has been taken from Cahill (2011), cited in Voermans (2012).</p> <p>Legend commenced exploration of the area in 1995, initially concentrating on areas of historic workings.</p> <p>Dragon Mining NL, (“Dragon”) and Titan Mining NL (“Titan”) commissioned an Airborne Electromagnetic (“AEM”) survey over a large portion of the West Pilbara in 1996 and 2001 respectively.</p> <p>In 1999 and 2000, Legend explored the copper anomaly identified by AMAX in 1969, which led to the discovery of high-grade copper-gold mineralisation in a soil covered area of Carlow South, south of the main workings.</p> <p>Further field activities included RC drilling, soil geochemical sampling, detailed ground magnetic surveys, trenching, preliminary metallurgical testwork, gradient array induced polarization (“IP”) and transient electromagnetic (“TEM”) surveys and resource estimates. This program was successful in identifying a high grade pod of gold mineralization which plunges 60° easterly within a broad shear zone and remains open at depth. This pod is surrounded by an extensive halo of lower grade gold and copper mineralization over a strike length of 400 m which is open to the west.</p> <p>In 2000 estimates of mineralization within 100 m of the surface were produced using a sectional polygonal method.</p> <p>A number of other prospects within a 500 m radius of the old Carlow Castle workings were subject to first pass RC drilling and results confirm the widespread presence of copper and gold mineralisation in the area. Approximately 400 m east of the main workings, drill hole CC54 in Carlow East intersected two mineralised horizons within a 20 m thick highly altered zone. The intersections included 4 m grading 1.32% Cu and 4.55 g/t Au from 38 m, and 48 m 5.66% Cu and 1.87 g/t Au, which included 8m @ 0.16% Co.</p> <p>Following orientation TEM and IP surveys over the Carlow South resource, a detailed IP survey was completed over the main area of interest. A detailed interpretation of the data resulted in the identification of numerous IP and resistivity targets. A total of 28 IP targets and 9 resistivity targets were selected and assigned a follow-up priority for immediate drilling. This planned drilling was never undertaken.</p> <p>Small scale mining of the green chrysoprase was undertaken in the past on M47/385 just north of the Carlow Castle main workings and several large boulders were mined and subsequently cut and polished for marketing purposes. Polished hand specimen show a translucent pattern of very</p>

Criteria	JORC Code explanation	Commentary
		<p>fine grained, apple green colour chert, transected by milky-white to blackish quartz veins and veinlets.</p> <p>In 2007 and 2008, Legend undertook geophysical exploration surveys over the project area, which used a combination of AEM and ground-based geophysics, and consisted of:</p> <ul style="list-style-type: none"> <li>• Compilation and processing of regional aeromagnetic and radiometric datasets covering the entire the project area. The compilation involved several historic datasets with line spacing varying from 25 m to 400 m.</li> <li>• Three Versatile Time Domain Electromagnetic (“VTEM”) surveys covered an area of approximately 410 km<sup>2</sup>, with flight directions ranging from E-W to NW-SE to N-S depending on the orientation of stratigraphy. Line spacing was either 200 m or 100 m with infill lines of 100 m or 50 m respectively if conductive features of interest were identified.</li> <li>• Three Ground Fixed-Loop Transient Electromagnetic (“FLTEM”) surveys were carried out to investigate 16 conductors identified by the airborne VTEM surveys. Thirteen of the 16 VTEM targets surveyed identified conductors considered significant enough to warrant future drill testing.</li> </ul> <p>2008 – 2016:</p> <p>No on ground Exploration activities were conducted between 2008 and 2016 as a native title agreement was being negotiated.</p>
<b>Geology</b>	<i>Deposit type, geological setting and style of mineralisation.</i>	<p>The project area lies on Archaean volcanic arc rocks, which overly two unconformable sequences of mainly volcanic and intrusive rocks. Amphibolites and undifferentiated mafic and ultramafic rocks dominate the older sequence, which have been metasomatised by intrusive activity. Gabbros and calcrete-covered serpentinites have been recognised in the area. According to Farrell (1985), the northern portion of the tenement reveals a rapidly</p> <p>The Carlow Castle - Quod Est gold-copper-cobalt (Au-Cu-Co) deposits are located 28 km northeast of the Radio Hill processing plant. Carlow Castle and Quod Est are structurally controlled mineralised zones occurring almost at right angles to each other.</p> <p>The Quod Est portion strikes approximately north-south dipping steeply east with a strike length of about 200 m and is fault terminated to the north and potentially at depth.</p> <p>The Carlow Castle portion strikes east-west, being fault terminated at each end. Drill definition has been completed over the 1,200 m strike length which has a flattened sinusoidal form. At the western end mineralisation dips steeply north, at the eastern end the mineralisation dips steeply south. Mineralisation in Carlow Castle has been shown to extend to at least 250 m below surface.</p>
<b>Drillhole Information</b>	<p><i>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drillholes:</i></p> <ul style="list-style-type: none"> <li>• <i>Easting and northing of the drillhole collar</i></li> <li>• <i>Elevation or RL (Reduced Level – elevation above sea level in metres) of the drillhole collar</i></li> <li>• <i>Dip and azimuth of the hole</i></li> <li>• <i>Downhole length and interception depth</i></li> </ul>	Exploration results are not being reported.

Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"> <li>Hole length.</li> </ul>	
	<i>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.</i>	Exploration results are not being reported.
<b>Data aggregation methods</b>	<i>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.</i>	Exploration results are not being reported.
	<i>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.</i>	Exploration results are not being reported.
	<i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i>	Exploration results are not being reported.
<b>Relationship between mineralisation widths and intercept lengths</b>	<i>These relationships are particularly important in the reporting of Exploration Results.</i>	The bulk of the Carlow Main mineralisation lodes dip sub-vertically or steeply to the North and steeply to the South in the eastern 20%, while Quod Est lodes dip steeply to the East. Other than a low proportion of scissor holes that provided volume control, drill holes were angled near to 60° and with an azimuth perpendicular to the lodes strike to provide as near a 'true' intercept thickness as realistically possibly.
	<i>If the geometry of the mineralisation with respect to the drillhole angle is known, its nature should be reported.</i>	Exploration results are not being reported.
	<i>If it is not known and only the downhole lengths are reported, there should be a clear statement to this effect (e.g. 'downhole length, true width not known').</i>	Exploration results are not being reported.
<b>Diagrams</b>	<i>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 drillhole collar locations and appropriate sectional views.</i>	Relevant maps and diagrams are included in the body of this announcement.
<b>Balanced reporting</b>	<i>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.</i>	Exploration results are not being reported.

Criteria	JORC Code explanation	Commentary
<b>Other substantive exploration data</b>	<i>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.</i>	<p>Surface geological observations have been incorporated into the geological interpretation and in concert with the results of geochemical assays, considered reasonable for this style of mineralisation.</p> <p>Downhole geophysical logging was undertaken. The geophysical probe penetrated &gt;85% of the final hole depth for 61% of the 36 holes and &gt;60% of the final depth for 78% of the holes. Six holes penetrated between 40% and 60% of the final depth, one hole penetrated 33% and one 18% of the final depth.</p>
<b>Further work</b>	<i>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</i>	<p>Infill drilling around the higher-grade zones is planned to improve the geological understanding of the host structures and the confidence of the geological model, grade estimate and Mineral Resource confidence in these zones.</p> <p>Acid-soluble copper samples are planned for the oxide material.</p> <p>Mine studies are planned to determine the amount of Mineral Resources that may be economically extracted.</p> <p>A high-resolution topographic surface is planned to assist in improving the confidence in the Mineral Resources and to allow accuracy in mine planning studies.</p>
	<i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i>	Relevant maps and diagrams are included in the body of this announcement.

### JORC 2012 Table 1 Section 3 – Estimation and Reporting of Mineral Resources

Criteria	JORC Code explanation	Commentary
<b>Database integrity</b>	<i>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.</i>	<p>Geophysical files were uploaded from the data logging device to the contractor's central storage database and then provided in both raw and corrected/filtered format in CSV, LAS and PDF format. This has removed the potential for transcription errors and for reference checks.</p> <p>Core logging was completed by Artemis on site using project-specific logging codes and a database management system; DataShed™, with primary key fields and look-up tables. Collar survey, down hole survey and assay files were loaded from source files using templates to load into predefined tables. These measures enforced strict referential integrity and validation rules to prevent corruption errors.</p> <p>The Competent Person found no material errors and deemed the database was fit for the purpose of Mineral Resource estimation.</p>
	<i>Data validation procedures used.</i>	<p>The Competent Person checked the drillhole files for the following errors prior to Mineral Resource estimation:</p> <ul style="list-style-type: none"> <li>• Absent collar data</li> <li>• Multiple collar entries</li> <li>• Questionable downhole survey results</li> <li>• Absent survey data</li> <li>• Overlapping intervals</li> <li>• Negative sample lengths</li> <li>• Sample intervals which extended beyond the hole depth defined in the collar table.</li> </ul>

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<b>Site visits</b>	<i>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</i>	The Competent Person, Dr Matthew Cobb, Principal Resource Geologist of CSA Global, has not visited the site, but has relied on information from colleague Dr Jamie Robinson, Principal Consultant (structural geology), collected during a site visit in October 2019.
	<i>If no site visits have been undertaken, indicate why this is the case.</i>	The Competent Person considers that the information provided to him by colleague Dr Jamie Robinson allows him to appropriately consider the necessary factors in establishing Mineral Resources for the confidence estimated.
<b>Geological interpretation</b>	<i>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</i>	The lithologies at Carlow Castle are generally homogenous, and a lack of lithological relationship to grades was established. The dominant control on mineralisation is by structures potentially far smaller than the drill hole spacing and smaller than which can be explicitly modelled. Therefore, the geological model consisted of waste and mineralisation.
	<i>Nature of the data used and of any assumptions made.</i>	No material assumptions have been made which affect the MRE reported herein.
	<i>The effect, if any, of alternative interpretations on Mineral Resource estimation.</i>	The Competent Person is confident any alternative interpretations would result in globally immaterial differences in the Mineral Resource estimate.
	<i>The use of geology in guiding and controlling Mineral Resource estimation. The factors affecting continuity both of grade and geology.</i>	<p>Mineralisation generally shows a continuous grade distribution from un-mineralised through to high grade, with minor inflection points within the log-probability plot for the distribution. One such inflection occurs at 2,000 ppm Cu, on which definition of mineralisation lodes were based, and which also correlated with structural measurements defined by structural logging and modelling. Geology has been a key principal in driving the MRE. A number of other potential higher cutoffs were trialled for modelling, however a robust model of continuous mineralisation could not be established.</p> <p>The geological model includes a shallow, approximately 3 m thick overburden surface and an oxide horizon that averages 40 m depth. Little transitional material has been noted, with a complete oxidation profile transitioning immediately to fresh rock.</p>
<b>Dimensions</b>	<i>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.</i>	<p>The Carlow Castle Main lodes have been interpreted as a set of anastomosing fingers extending off and conjoining a major central lens that follows a broad, sigmoidal curve whose centre-line at 7,698,660 mN strikes east-west, being fault terminated at each end for a strike-length of 1,200 m. The anastomosing lodes vary in thickness from 5 m where they pinch to a thickest point of 90 m. Overall, the lodes relatively consistently average 40–50 m.</p> <p>At the western end, mineralisation dips steeply north, at the eastern end, east of 507,640 mE, the mineralisation dips steeply south. Mineralisation in Carlow Castle has been interpreted to a maximum of 320 m below surface, averaging 170 m.</p> <p>The Quod Est portion has been interpreted as two lodes dipping steeply east. The major lode outcrops and strikes NNE, bifurcates at its southern third, and measures about 200 m overall, with a relatively consistent average depth of 75 m for a range of 55–95 m. The minor lode strikes NNW with a length measuring 60 m, width up to 10 m, averaging 3 m, and a depth of 110 m.</p>
<b>Estimation and modelling techniques</b>	<i>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation</i>	The Mineral Resources were estimated within two estimation domains, representing Carlow Castle Main and Quod Est, formed from the mineralisation model interpreted at a nominal cut-off of 2,000 ppm Cu. The domains were further

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	<p><i>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</i></p>	<p>split into overburden, oxide and fresh by the oxidation wireframes.</p> <p>All geological modelling was undertaken using Surpac software.</p> <p>Statistics, grade and density estimates, and variography, were undertaken in Isatis and Supervisor software, and composite selection and block coding, undertaken in Surpac software, used the combined domains as hard boundaries.</p> <p>Samples were composited to 1 m intervals based on assessment of the raw drillhole sample interval lengths.</p> <p>Quantitative Kriging Neighbourhood Analysis (QKNA) was undertaken using Supervisor and Isatis software to assess the effect of changing key kriging neighbourhood parameters on block grade and density estimates. Kriging Efficiency and Slope of Regression were determined for a range of block sizes, minimum and maximum samples, search dimensions and discretisation grids. A two-pass search ellipse strategy was adopted, whereby the first pass equated to the full range of the relevant variogram model for each domain, with a minimum of 6 samples, maximum of 20 samples and a maximum of 3 samples per hole. The second pass search ellipse was double the variogram model range, with a minimum of 6 samples, maximum of 20 samples and a maximum of 3 samples per hole. All blocks were filled in the first two passes.</p> <p>A 20 mE x 10 mN x 20 mRL parent cell size was constructed covering the full volume of the mineralisation and additional space for mine infrastructure planning. No sub-celling was employed, instead the proportion of each block within mineralised wireframes and below the topographic surface was calculated into a block field.</p> <p>Blocks with a very low proportion (&lt;0.1%) in mineralisation on the fringes of the wireframes had grades set to zero.</p> <p>High grade cuts were used to constrain outliers in the dataset as described above.</p> <p>From the Panel estimate produced via ordinary kriging, a local change of support was applied through Uniform Conditioning (UC) for each of the variables under consideration (Cu, Au, Co, As and S). Change of support was applied with the assumption of a selective mining unit (SMU) of dimensions 10 m x 5 m x 5 m (X by Y by Z). Tonnages and grades were adjusted proportionally during UC for Panels that were not proportionally wholly mineralisation. The UC estimate was further post-processed to provide a localised estimate of grade for individual SMUs within the final model. Panel estimation, change of support and post-processing localisation were undertaken using Isatis software, with the final localised SMU model exported to Surpac.</p>
	<p><i>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</i></p>	<p>Several previous historical resource estimates have been completed previously. These reports were available to the Competent Person. These did not necessarily cover the same area as this Mineral Resource update and were volumetrically smaller in their extent. Further; while these Previous Mineral Resources are quoted below, the approach taken to modelling and estimation differs fundamentally from that of the current estimate Consequently, the models are not directly comparable.</p> <p><b>Jones, 2018</b></p>

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		<p>In 2018, Mr Philip Jones estimated Mineral Resources reported in accordance with the JORC Code for Carlow South using drilling data provided by Artemis to model mineralisation wireframes that were based on a total net smelter return of &gt;\$30 using the following metal factors:</p> <ul style="list-style-type: none"> <li>• Copper: Price: \$4.473/lb; Recoveries: 75% (mining and metallurgical recovery)</li> <li>• Gold: Price: \$USD1282.10/oz; Recoveries: 90% (mining and metallurgical)</li> <li>• Cobalt: Price: \$54,500/t; Recoveries: 75% mining and metallurgical</li> </ul> <p>In January 2019 Al Maynard &amp; Associates estimated Inferred Mineral Resources at Carlow Castle South and Quod Est of 7 Mt @ 0.51% Cu, 1.06 g/t Au and 0.08% Co.</p> <p>In March 2019, Artemis announced an Inferred Mineral Resource update of 7.7 Mt @ 0.51% Cu, 1.06 g/t Au and 0.08% Co, reported in accordance with the JORC Code. This represented an increase of 71%.</p> <p>Four domains, based on the strike of the mineralisation, were used in the modelling. High grade cuts were also applied using mean grades +2SD of copper, gold and cobalt per domain. Grades were interpolated by Inverse Distance Squared (ID2).</p>
	<p><i>The assumptions made regarding recovery of by-products.</i></p>	<p>The co-products, gold and cobalt, are assumed to be recoverable within the mineralisation wireframe volumes that have been modelled on a copper grade cut-off. The metallurgical testwork for gold and cobalt may not be representative of the material reported as Mineral Resources. However, the metallurgical testwork results show that gold and cobalt can be recovered.</p>
	<p><i>Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).</i></p>	<p>Arsenic and sulphur have been estimated, although it is unknown at this stage of the project if they are deleterious for copper, gold and cobalt.</p>
	<p><i>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</i></p>	<p>The dimensions of the Panel used for preliminary estimation during UC represents approximately half the drillhole spacing in both the X and Y orientations.</p>
	<p><i>Any assumptions behind modelling of selective mining units.</i></p>	<p>The SMU has been determined based on the assumption of a production scenario utilising small to medium size earthmoving equipment (for reference; 125 tonne excavator, plus CAT 777 or equivalent haul trucks). In the experience of the Competent Person, this equipment selection may be considered typical for a deposit of the size and style of Carlow Castle.</p>
	<p><i>Any assumptions about correlation between variables</i></p>	<p>No assumptions have been made regarding the correlation of variables.</p>
	<p><i>Description of how the geological interpretation was used to control the resource estimates.</i></p>	<p>Logged geology, alteration and structural controls were used in the interpretation of lodes within the resource model. Hard boundaries were used for estimation between mineralised domains.</p>
	<p><i>Discussion of basis for using or not using grade cutting or capping.</i></p>	<p>For the estimate of grades, a maximum distance of 10 m was applied to very high-grade values to limit their influence on Panel estimates. These values, determined by statistical analysis including review of CV values, histograms, log-probability plots and mean-variance plots, were:</p> <p>Carlow Main, oxide:</p> <ul style="list-style-type: none"> <li>• 60,000 ppm Cu</li> <li>• 40 ppm Au</li> <li>• 15,000 ppm Co</li> </ul>

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		<ul style="list-style-type: none"> <li>• 20,000 ppm As</li> <li>• 100,000 ppm S</li> </ul> <p>Carlow Main, fresh:</p> <ul style="list-style-type: none"> <li>• 60,000 ppm Cu</li> <li>• 40 ppm Au</li> <li>• 15,000 ppm Co</li> <li>• 20,000 ppm As</li> <li>• 100,000 ppm S</li> </ul> <p>Quod Est, oxide:</p> <ul style="list-style-type: none"> <li>• 40,000 ppm Cu</li> <li>• 20 ppm Au</li> <li>• 20,000 ppm Co</li> <li>• 20,000 ppm As</li> <li>• 80,000 ppm S</li> </ul> <p>Quod Est, fresh:</p> <ul style="list-style-type: none"> <li>• 40,000 ppm Cu</li> <li>• 20 ppm Au</li> <li>• 20,000 ppm Co</li> <li>• 20,000 ppm As</li> <li>• 80,000 ppm S</li> </ul>
	<p><i>The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.</i></p>	<p>Standard model validation was completed using numerical methods (histogram and swath plots) and validated visually in section and 3D against the input raw drillhole data, composites and blocks.</p>
<p><b>Moisture</b></p>	<p><i>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</i></p>	<p>Tonnages have been estimated on a dry basis.</p>
<p><b>Cut-off parameters</b></p>	<p><i>The basis of the adopted cut-off grade(s) or quality parameters applied.</i></p>	<p>The Mineral Resources were reported at a 0.3% Cu cutoff for Cu and Co, and a 0.3ppm Au cutoff for Au, within Whittle optimisation that used the following factors:</p> <ul style="list-style-type: none"> <li>• 50° overall slope angle</li> <li>• Oxide and Fresh used same recoveries / processing costs</li> <li>• \$48.1 / tonne processing (includes refining, insurance and G&amp;A)</li> <li>• Recoveries, which in Artemis' opinion have a reasonable potential to be achieved, are: <ul style="list-style-type: none"> <li>○ 85% Cu recovery</li> <li>○ 94.8% Au recovery</li> <li>○ 73% Co recovery</li> </ul> </li> <li>• Mining Costs \$ / tonne incremented by depth (coded into each block in the model by RL), ranging from \$2.57 through to \$5.77 inclusive</li> <li>• Prices: <ul style="list-style-type: none"> <li>○ Cu \$9000 / tonne</li> <li>○ Au \$2000 / oz</li> <li>○ Co \$48000 / tonne</li> </ul> </li> <li>• 5% royalties per tonne payable on both copper and cobalt produced. 2.5% royalty per ounce payable on gold produced.</li> </ul>
<p><b>Mining factors or assumptions</b></p>	<p><i>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</i></p>	<p>Open pit mining is considered as the appropriate method for future studies, and the Competent Person believes that there are reasonable prospects for eventual economic extraction based on the outputs of the Whittle optimisation completed.</p>

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	<p><i>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.</i></p>	<p>A minimum mining width of 2 m was applied (downhole composite width). No other mining assumptions were made.</p> <p>Detailed mining assumptions such as dilution and minimum mining widths will be included in any optimisation, detailed mine planning and Life of Mine plan.</p>
<p><b>Metallurgical factors or assumptions</b></p>	<p><i>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.</i></p>	<p>Artemis has completed preliminary metallurgical testwork on the project at ALS Metallurgy in WA focussing on the metallurgical amenability of selected samples from the Carlow Castle deposit employing conventional gravity gold, cyanide leach and flotation processes.</p> <p>The results of the metallurgical testwork program were released to the ASX on 11 February 2019 (Artemis, 2019). This provides a basis to plan and advance project development activities.</p> <p>The planned development work bringing Carlow Castle through a Pre-Feasibility Study and into production includes two 100 kg composites of HQ diamond core, sampled from drillholes CCAD001 to CCAD012 (refer ASX release 15 October 2018), with quarter core submitted for testwork that fairly represents ‘average’ and ‘high-grade’ ore from Carlow Castle. Results are detailed below:</p> <ul style="list-style-type: none"> <li>• Gold <ul style="list-style-type: none"> <li>○ 48% of gold by testwork on metallurgical samples was recovered using gravity separation, and most of the balance of the non-gravity gold is recoverable in sulphide concentrates as a by-product using standard flotation.</li> </ul> </li> <li>• Copper <ul style="list-style-type: none"> <li>○ Quick floating copper minerals produced a high-grade, premium copper concentrate of approximately 30% Cu.</li> <li>○ Deleterious elements including arsenic may be managed with a light concentrate polishing using regrind or blend control. Recoveries depended on mineralogy, with 77–85% copper recoveries achieved.</li> <li>○ Unrecovered copper minerals are predominantly represented by non-floating silicates or secondary oxide copper minerals.</li> </ul> </li> <li>• Cobalt <ul style="list-style-type: none"> <li>○ Cobalt recoveries ranged from 73–79%. Saleable Cobalt concentrate grades ranging 2.3–5.3% Co were produced. Cobaltite (CoAsS) is the dominant cobalt bearing mineral and is therefore intrinsically linked to arsenic affecting its sale price.</li> </ul> </li> </ul> <p>Artemis (2019) believe the gold recovered by metallurgical testwork could be sold in concentrates as a credit or recovered on site using a cyanide leach process, while testwork continues to improve cobalt concentrate grades and ultimately aims to maintain optimal recovery and reduce shipping/smelter treatment charges.</p> <p>CSA Global recommend additional metallurgical programs including sampling of assay pulps across the Mineral Resource for soluble copper and multi-element analysis. Further geometallurgical testwork to develop quantitative mineralogy and rock mass studies is also recommended.</p>

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<b>Environmental factors or assumptions</b>	<p><i>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.</i></p>	<p>No assumptions regarding possible waste and process residue disposal options have been made.</p> <p>Sulphur and arsenic have been estimated into the model to allow the assessment of potentially acid forming minerals and other environmentally sensitive residue.</p>
<b>Bulk density</b>	<p><i>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.</i></p>	<p>For mineralisation, downhole geophysical gamma density was used to estimate density by OK using the relevant variogram and estimation parameters for each statistical domain.</p> <p>The gamma signatures of 156 drillholes were logged in counts-per-second (cps) by WSG. These wireline measurements were then converted to physical property values using calibrations determined specifically for each physical property parameter, which produced a density value based on the mineral assemblage's present.</p> <p>The data were provided in a column "density" in a database table as an average over 10 cm downhole spacings for 97% of the readings, 1 m for 3% of the readings and a single reading of 3 m. The gamma-density records numbered 117,859, of which 7,480 (6%) and 110,379 (94%) records derived from diamond and RC holes respectively. An average of 73% of the total hole depths was logged for the holes which they probed.</p> <p>Only sample points that had a calliper measurement of not more than 20% of the nominal hole diameter for each hole type were included in the analysis and data for estimation. The gamma density was visually correlated point-by-point to each overlapping water immersion determination of specific gravity on HQ3 core, which found a strong correlation.</p> <p>The size and range of lengths of density determinations are considered by the Competent Person to be robust. A correlation of 0.05 was calculated between sample lengths and density determinations, confirming that the sample length has no impact on the density.</p> <p>A scatter plot of gamma-density and diamond core density determinations produced a line of regression with a moderately strong correlation of 0.67, although this was not forced through the origin. A significant, although not concerning, amount of scatter was evident, showing the variability between the datasets.</p> <p>The two density results down-hole show very strong visual correlation, other than hole 18CCAD005, which is a shallow hole with density samples located in Carlow Main central-west oxide and fresh mineralisation. Gamma-density was acquired for both holes of the twin-pair, 18CCAD002 and ARC040. Figure 24 shows gamma-density plotted for both holes down-hole and the diamond core density for 18CCAD002. The gamma-density of the RC hole is weakly low-biased compared to the diamond core density, while the gamma-density of the diamond hole is very weakly high-biased.</p>

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		<p>The gamma-density were used to estimate density in the block model without correction. This was based on the analysis that the overwhelming majority of the gamma data available derives from RC holes, and the single twinned hole pair analysis available shows that the RC gamma-density data may have a slight low-bias compared to diamond core density, while a moderately strong correlation was calculated and was visually confirmed down-hole between diamond core and gamma-density.</p> <p>Sample points were composited to 1 m length prior to estimation.</p> <p>Waste densities were applied from nominal values drawn from AusIMM monograph 9 for basalt, colluvium and saprolite.</p>
	<i>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.</i>	<p>The gamma determines a quantitative, in situ measurement of density that accounts for void spaces. The measurements have been calibrated to regular calibration holes in iron ore deposits in the Pilbara, and on materials at the contractor's (WSG) facility.</p> <p>The water immersion method measurements were determined by measuring the weight of part or the entire sample in air and water and then applying the formula bulk density = weight_air/(weight_air-weight_water). Samples of drill core were sealed with a masonry sealant/wax and allowed to dry prior to bulk density determination.</p> <p>The estimate of density was undertaken within oxidation domains in the mineralisation.</p>
	<i>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</i>	<p>After considering the results of the above analysis, the gamma density data were considered sufficient in number for all material types, quantitative and unbiased when large calliper deviations from the nominal hole diameter were removed. Calibration was undertaken using comparison to other holes and to density measured by water immersion. The approach adopted is considered robust.</p>
<b>Classification</b>	<i>The basis for the classification of the Mineral Resources into varying confidence categories.</i>	<p>The MRE was classified as Inferred based on the level of geological understanding of the mineralisation, quality of samples, density data, drillhole spacing, historical nature of the drilling, detail of metallurgical information available for soluble / insoluble copper speciation and sampling and assaying processes.</p>
	<i>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).</i>	<p>The classification reflects the overall level of confidence in mineralised domain continuity based the mineralisation drill sample data numbers, spacing and orientation. Overall mineralisation trends are reasonably consistent within the various lithotypes over numerous drill sections.</p>
	<i>Whether the result appropriately reflects the Competent Person's view of the deposit.</i>	<p>The Mineral Resource classifications applied appropriately reflect the view of the Competent Person.</p>
<b>Audits or reviews</b>	<i>The results of any audits or reviews of Mineral Resource estimates.</i>	<p>Internal audits were completed by CSA Global which verified the technical inputs, methodology, parameters and results of the estimate.</p>
<b>Discussion of relative accuracy/ confidence</b>	<i>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</i>	<p>The accuracy of the MREs is communicated through the classification assigned to the various parts of the deposits. The MREs have been classified in accordance with the JORC Code (2012 Edition) using a qualitative approach. All factors that have been considered have been adequately communicated in Section 1 and Section 3 of this table.</p>

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	<i>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.</i>	The MRE statement relates to a global estimate of in-situ tonnes and grade.
	<i>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.</i>	The accuracy of the MREs is communicated through the Inferred classification assigned to the deposit. The MRE has been classified in accordance with the JORC Code. All factors that have been considered have been adequately communicated in Section 1, Section 2 and Section 3 of this table.  The MRE statement relates to a global estimate of in-situ tonnes and grade.
	<i>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</i>	No production data are available.