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6 November 2019

SIGNIFICANT INCREASE IN EXPLORATION TARGET AT KHARMAGTAI

Xanadu Mines Ltd (**ASX: XAM, TSX: XAM**) **("Xanadu"** or **"the Company"**) is pleased to announce it has upgraded the global copper and gold Exploration Target at its flagship Kharmagtai project, which is located in the south Gobi region of Mongolia (**Figures 1 and 2**). A new global Exploration Target has been developed to highlight the large-scale copper-gold potential of the Kharmagtai project. Additionally, an independent valuation (**VALMIN**) has been completed by SRK for the Kharmagtai Mining Lease (please see **Appendix 1**).

HIGHLIGHTS

- **Large-scale global copper-gold exploration target upgraded for Kharmagtai Project above and beyond 2018 Mineral Resource Estimate**
- **The Exploration Target is based on 190 diamond drill and 73 reverse circulation drill holes completed since 2002 at Kharmagtai at five separate porphyry centres with over 77,808 metres of new diamond drilling completed by Xanadu**
- **Additional sulphide metallurgical work in final stages of completion**
- **Compelling vectors to a very large-scale system below the surface deposits uncovered**
- **Further drilling is planned to:**
  - **Convert mineralisation within the Exploration Target into resources;**
  - **Extend current high-grade mineralisation; and**
  - **Test seven targets outside of the Exploration Target**
- **Independent Valuation for the Kharmagtai Project completed**

Xanadu's Managing Director & Chief Executive Officer, Dr Andrew Stewart, said *"We have always had a strong belief in the large-scale copper-gold potential of Kharmagtai. This Global Exploration Target outlines the areas we are aiming to convert to resources in the near to mid-term. Additionally, our geologists have highlighted a series of compelling geochemical and geophysical vectors which suggest mineralisaiton within this Exploration Target is just the tip of a much larger porphyry system. We know these systems exist in Mongolia as the giant Oyu Tolgoi is currently being mined some 120km to the south of Kharmagtai and we believe that Kharmagtai is a similar type of system. Additionally, we are in the final stages of completing metallurgical work for the three existing sulphide deposits, which is aimed at increasing the already good recovery assumptions made in the 2018 mineral resource upgrade. Finally, an independent valuation of the Kharmagtai project has been completed by independent consultants, SRK. We commissioned this valuation to highlight to the market the disparity between the company's current perceived value and the Kharmagtai project's potential value.*

Our long running objective is to develop Mongolia's next large-scale copper gold deposit. Our current strategy of seeking high-return options via an oxide gold project is focused on providing the capital needed to advance that larger scale copper and gold project".

GLOBAL COPPER-GOLD EXPLORATION TARGET FOR KHARMAGTAI

An exploration target has been developed for the Kharmagtai lease with the aim of highlighting the large-scale copper-gold potential of the project. The recently released Mineral Resource Upgrade and Scoping Study (*please see ASX releases dated 31 October 2018 and 11 April 2019*) have demonstrated a robust and viable copper-gold project, but this work only included a small portion of the known mineralisation at Kharmagtai. This Exploration Target has been developed to demonstrate the upside potential of the Kharmagtai Mining Lease and show the areas which could potentially be added to the resource inventory in the near to mid-term.

Five targets have been reviewed across the lease ranging from extensions to existing resources at Stockwork Hill, White Hill and Copper Hill to the recently discovered Zaraa and Golden Eagle deposits.

The Exploration Target is conceptual in nature as there has been insufficient exploration to define a Mineral Resource. It is uncertain if further exploration will result in the determination of a Mineral Resource under the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, the JORC Code” (**JORC 2004**). The Exploration Target is not being reported as part of any Mineral Resource or Ore Reserve and the areas of mineralisation that have been reported in the 2018 Mineral Resource Upgrade have been removed from the exploration target area.

Additionally, two styles of exploration target have been defined. **Table 1** shows the exploration targets as a range define based on drill results and extensions of the 2018 Mineral Resource Upgrade only.

Table 2 shows exploration targets as a range where corroborating geophysical and geological data at Zaraa highlight potential extensions to that target.

Table 1: Kharmagtai copper-gold exploration targets – drill result and block model extension data only

Target Name	Length[*1] (m)	Width[*2] (m)	Height[*3] (m)	Density[*4] (t/m3)	Tonnage Range[*4]	Grade Range[*6] (eCu)	Comments
White Hill	1200 to 1800	400 to 500	250 to 500	2.76	331Mt to 1.24Bt	0.3% to 0.5% eCu	See Figure 3 for dimension details
Stockwork Hill	800 to 900	200 to 400	150 to 250	2.76	66Mt to 248Mt	0.3% to 0.5% eCu	See Figure 4 for dimension details
Copper Hill	200 to 300	100 to 200	200 to 300	2.76	11 to 50Mt	0.3% to 0.5% eCu	See Figure 5 for dimension details
Golden Eagle	300 to 350	200 to 250	200 to 250m	2.76	33 to 60Mt	0.3% to 0.5% eCu	See Figure 8 for dimension details
Target Name	**Length[*1] (m)**	**Width[*2] (m)**	**Height[*3] (m)**	**Density[*4] (t/m3)**	**Tonnage Range[*4]**	**Grade Range[*6] (eCu)**	**Comments**
Stockwork Hill	300-450	150-200	150-250	2.78	19Mt - 63Mt	0.5% to 1% eCu	See Figure 4 for dimension details
Zaraa	600-700	100-150	200-250	2.78	33Mt - 73Mt	0.5% to 1% eCu	See Figure 6 for dimension details

1* - Length of the exploration target is defined as a conservative maximum and minimum length estimation based off the distances over which drill intercepts are observed
2* - Width of the exploration targets is defined as a conservative maximum and minimum width estimation based off the distances over which drill intercepts are observed
3* - Height information is defined as a conservative maximum and minimum height estimation based off the distances over which drill intercepts are observed
4* - Density data is taken from drilling data and assumed to be the average rock density in the Kharmagtai dataset at grade ranges above 0.3% eCu (2.76 t/m^3) and 0.5% eCu (2.78 t/m^3)
5* - Tonnage range is estimated as a calculation of the maximum and minimum length, width and depth multiplied by the density.
6* - Grade range is taken directly from drill results
7* - Numbers are rounded to avoid the false impression of a level of accuracy which may have led to the misrepresentation that this Exploration Target is akin to a Resource Estimation.
8* - Metallurgical recovery information is built into the eCu calculation and therefore should not be applied in addition to the tonnages reported here
9* - A floor of 600m from surface has been applied to the 0.3% eCu cut-off target to represent a realistic maximum depth for a potential open cut
10* - cut off grades of 0.3%eCu have been used to represent potential open cut material and 0.5% eCu for underground material to match that used in the 2018 MRE

Table 2: Kharmagtai copper-gold exploration target – drill result with geophysical extensions

Target Name	Length[*1] (m)	Width[*2] (m)	Height[*3] (m)	Density[*4] (t/m3)	Bulk Tonnage Range[*5]	Minus Table 1 (above) tonnage range[*6]	Geophysical Extension Tonnage Range[*7]	Grade Range[*6] (eCu)	Comments
Zaraa	800 to 1300	150 to 200	500 to 600	2.78	167Mt – 434Mt	33Mt - 73Mt	134Mt – 361Mt	0.5% to 1% eCu	See Figure 7 for dimension details

1* - Length of the exploration target is defined as a conservative maximum and minimum length estimation based off the distances over which drill intercepts are observed and geological or geophysical characteristics associated with the mineralisation are observed
2* - Width of the exploration targets is defined as a conservative maximum and minimum width estimation based off the distances over which drill intercepts are observed and geological or geophysical characteristics associated with the mineralisation are observed
3* - Height information is defined as a conservative maximum and minimum height estimation based off the distances over which drill intercepts are observed and geological or geophysical characteristics associated with the mineralisation are observed.
4* - Density data is taken from drilling data and assumed to be the average rock density in the Kharmagtai dataset at grade ranges above 0.3 eCu (2.76 t/m^3) and 0.5% eCu (2.78 t/m^3)
5* - Tonnage range is estimated as a calculation of the maximum and minimum length, width and depth multiplied by the density.
6* - Grade range is taken directly from drill results and shown in Table 1
7* - The Exploration target from Table one is subtracted to give an extension to the Table one result
8* - Numbers are rounded to avoid the false impression of a level of accuracy which may have led to the misrepresentation that this Exploration Target is akin to a Resource Estimation.
9* - Metallurgical recovery information is built into the eCu calculation and therefore should not be applied in addition to the tonnages reported here
10* - cut off grades of 0.3% eCu have been used to represent potential open cut material and 0.5% eCu for underground material to match that used in the 2018 MRE

ABOUT WHITE HILL

White Hill represents the largest outcropping body of mineralisaiton at Kharmagtai. Mineralisaiton consists of disseminated copper sulphides associated with high-density quartz veining typical of a large porphyry system. The dimensions for the Exploration Target at White Hill are based off diamond drill holes with drill results over 0.3% eCu (**Figure 3**). Geological and structural analysis of the White Hill deposit over the past year has shown that the higher-grade mineralisaiton is associated with a combination of a dyke of monzodiorite (**P2**) and series of west-northwest dipping faults. It is believed these faults have helped channel mineralisaiton upwards where it has interacted with magnetite bearing quartz stockworks in and around the monzodiorite dyke resulting in the precipitation of copper and gold. This model significantly expands the area over which mineralisation could occur and suggests the White Hill system is significantly larger than previously thought. Geophysical data suggests that the White Hill deposit will join at depth with the Stockwork Hill Deposit.

ABOUT STOCKWORK HILL

Stockwork Hill is the second largest zone of outcropping mineralisaiton at Kharmagtai. Mineralisaiton consists of a combination of high-grade stockworks and tourmaline breccias. Recently, the high-grade extensions to the deposit were discovered when an offset zone of gold-rich bornite mineralisaiton was drilled south of the main tourmaline breccia body. This work has shown that Stockwork Hill is linked at depth to a potentially much larger and higher grade bornite zone. Due to the variation in the style of mineralisation the geophysical signature of the deposit is not fully understood. The high-density stockwork zones respond in magnetics surveys but the tourmaline breccia appears to be magnetically destructive. Induced polarisation appears not to see the mineralisaiton as the sulphides are massive breccia infill and vein hosted rather than disseminated. The Exploration Target at Stockwork Hill was therefore only based on diamond drill results only **(Figure 4**). There is a strong magnetic anomaly that sits below Stockwork Hill to the southwest, suggesting the potential for a large high-density stockwork zone that may also link to White Hill.

ABOUT COPPER HILL

Copper Hill is the highest-grade zone of mineralisation at Kharmagtai and was discovered when a small but intense magnetic high was drilled early in Kharmagtai's history. Mineralisation consists of very high-grade chalcopyrite veins overprinting an existing stockwork of quartz magnetite veins. In a scenario very similar to White Hill, mineralisaiton is associated with the confluence of a P2 monzodiorite dyke and west-northwest dipping faults (Figure 5). Beneath Copper Hill sits a large zone of high intensity magnetics which may represent the extensions to Copper Hill.

ABOUT ZARAA

Zaraa was discovered in 2018 as a part of the undercover initiative. Mineralisation at Zaraa consists of chalcopyrite bearing quartz veins and chalcopyrite only veining associated with a series of P2 monzodiorite dykes. The Zaraa system has a very large 3DIP chargeability anomaly which sits above and surrounding the mineralisation (**Figure 6**). Due to the size of Zaraa and the limited amount of drilling a conservative approach has been taken to developing an Exploration Target with only drilling data having been used. However, should the zone of known mineralisation be extended using geophysical corroboration seen in the IP data a significantly larger Exploration Target would be appropriate (see **Table 2** and **Figure 7**).

ABOUT GOLDEN EAGLE

Golden Eagle was discovered in 2017 as a part of the undercover initiative. Mineralisaiton at Golden Eagle consists of chalcopyrite bearing quartz-magnetite veins and disseminated chalcopyrite with free gold. Mineralisation at Golden Eagle broadly coincides with a large magnetic high relating to the magnetite content of the porphyry quartz veining. The Exploration Target at Golden Eagle has been based solely on drilling data (**Figure 8**).

LARGE SCALE POTENTIAL OF THE KHARMAGTAI LEASE

The undercover initiative implemented in 2016 is still being followed up upon. There are large parts of the Kharmagtai Mining Lease which exhibit significant copper and gold geochemical anomalism (**Figure 9**) that require follow up drilling to test. The shallow open pit potential of the lease is still significant. Additionally, porphyry mineral systems form as copper and gold are concentrated through a series of vertically staged magma chambers. It is this characteristic that makes these systems so large. At Oyu Tolgoi, 120km south of Kharmagtai the main mineral deposit does not start until >600m vertically from surface and extends to some 2400m below surface to where drilling stopped.

At Kharmagtai there are a set of compelling vectors that suggest the mineralisation seen at surface is just the top of a much larger system. The first of these vectors is the gravity data. When the low frequency gravity data is reviewed a very large, higher density body is seen below the surface mineralisaiton (**Figure 10**). This body could represent another, larger staging chamber, from which the currently drilled mineralisation may have evacuated. Another compelling feature are the zones of high magnetics below Stockwork Hill, White Hill and Copper Hill. These may represent zones of high-density quartz-magnetite-chalcopyrite-bornite veining (**Figures 11, 12 and 13**). Additionally, porphyry systems are usually zoned chemically. Molybdenum often forms a halo above and around the tops of copper gold porphyry systems. At Kharmagtai this zonation is seen, most clearly at White Hill, however, another halo of molybdenum enrichment can be cross cutting the base of White Hill and Zaraa, strongly suggesting a larger copper gold system lies beneath the surface mineralisaiton (**Figure 14**). When combined, these vectors paint the picture of a giant porphyry system below the existing mineralisation.

PROGRAM REQUIRED TO CONVERT EXPLORATION TARGETS TO RESOURCES AND DISCOVER LARGE-SCALE POTENTIAL

A geophysical and drill program has been designed and costed to convert the above Exploration Targets into inferred Mineral Resources and discover the hypothesised very large-scale copper gold porphyry system beneath the existing resources.

The first phase of exploration would consist of a tenement wide seismic survey conducted in parallel with a similar spaced deep seeing magnetotellurics (**MT**) program. Seismic would be used to define the fault architecture of the entire mining lease to ensure the drill targeting is as accurate as possible. A magnetotellurics program would be conducted to identify large zones of sulphide mineralisation located beneath the structures highlighted by the seismic survey. This program has been costed at between $300 to $600K depending on the geophysical contractor used and would form the basis of the drill targeting for the Oyu Tolgoi sized system at Kharmagtai.

Drill holes have been planned for Stockwork Hill, Copper Hill, Zaraa and elsewhere within the tenement to convert the above exploration target into an inferred mineral resources. Costing for this program is summarised in **Table 3** below).

INDEDENDENT VALUATION OF THE KHARMAGTAI PROJECT BY SRK CONSULTING

An independent valuation of the Kharmagtai Property has been conducted by SRK Consulting (Australasia) Pty Ltd) (**SRK**) in accordance to the VALMIN Code (2015). The objective of SRK's report was to demonstrate the difference between the current company market valuation and a conservative and independent expert valuation of one of the projects within Xanadu's portfolio. This valuation can be found in **Appendix 1**.

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Table 3: Indicative drill costs

Target	*Target Type*	*Target Res Cat*	*# Drill Holes*	*DDH (m)*	*RC (m)*	*Assays*	*Total Cost*
Copper Hill	Open Pit/UG	Indicated	13	13000		$ 6,500	$ 2,184,040
Stockwork Hill Bornite	Underground	Indicated	25	35000		$ 15,000	$ 5,840,040
White Hill West	Open Pit/UG	Indicated	48	0	13000	$ 7,500	$ 1,095,040
Zaraa	Underground	Inferred	20	22862		$ 11,000	$ 3,833,960
Porphyry Cluster One	Open Pit/UG	Discover	18	2600	2600	$ 2,600	$ 652,640
Porphyry Cluster Two	Open Pit/UG	Discover	28	4200	4200	$ 4,200	$ 1,054,240
Porphyry Cluster Three	Open Pit/UG	Discover	17	2650	2650	$ 2,650	$ 665,190
Porphyry Cluster Four	Open Pit/UG	Discover	8	1200	1200	$ 1,200	$ 301,240
Porphyry Cluster Five	Open Pit/UG	Discover	17	2550	2550	$ 2,550	$ 640,090
Porphyry Cluster Six	Open Pit/UG	Discover	12	1800	1800	$ 1,800	$ 451,840
Large scale Cu-Au system	Underground	Discover	20	36000		$ 18,000	$ 6,048,040
						Total	$22,766,360

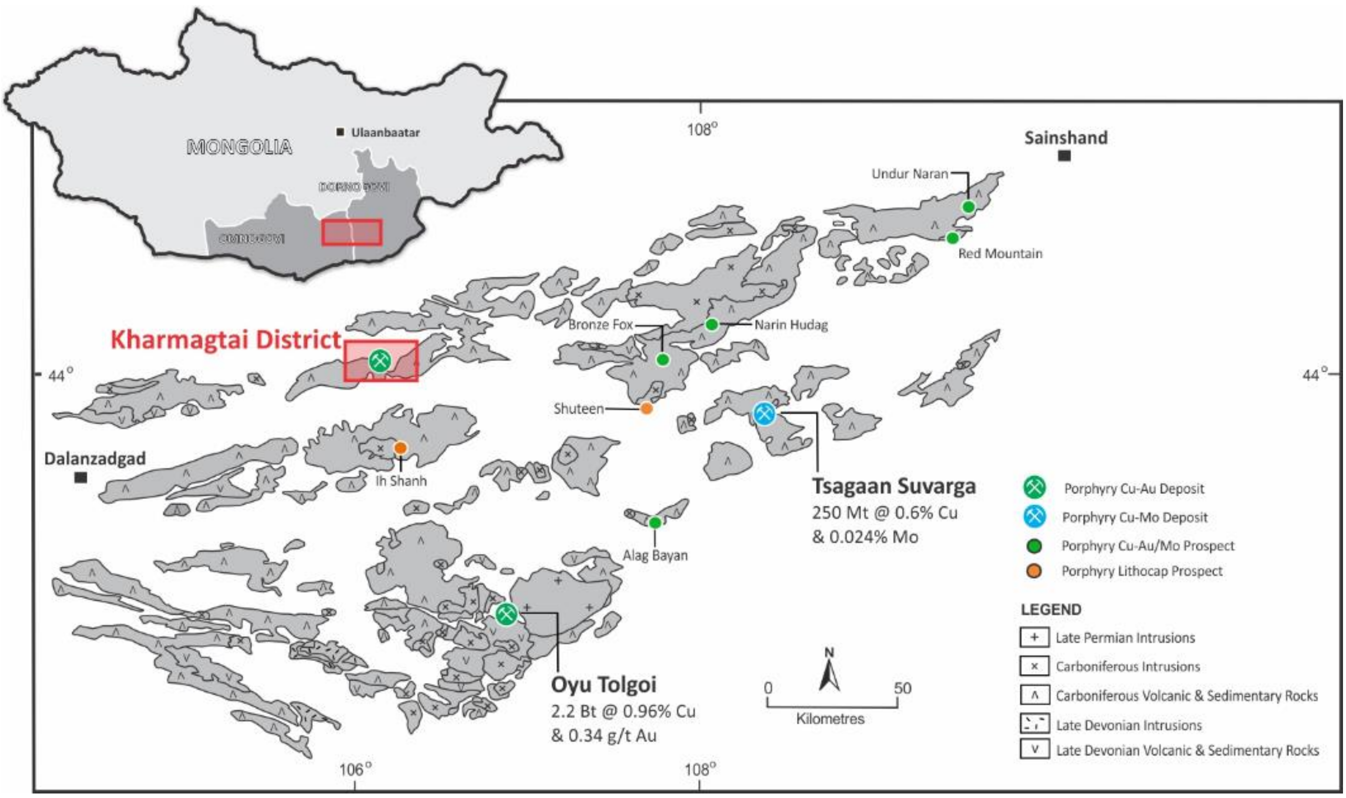

FIGURE 1: Location of the Kharmagtai Project in the South Gobi porphyry copper belt.

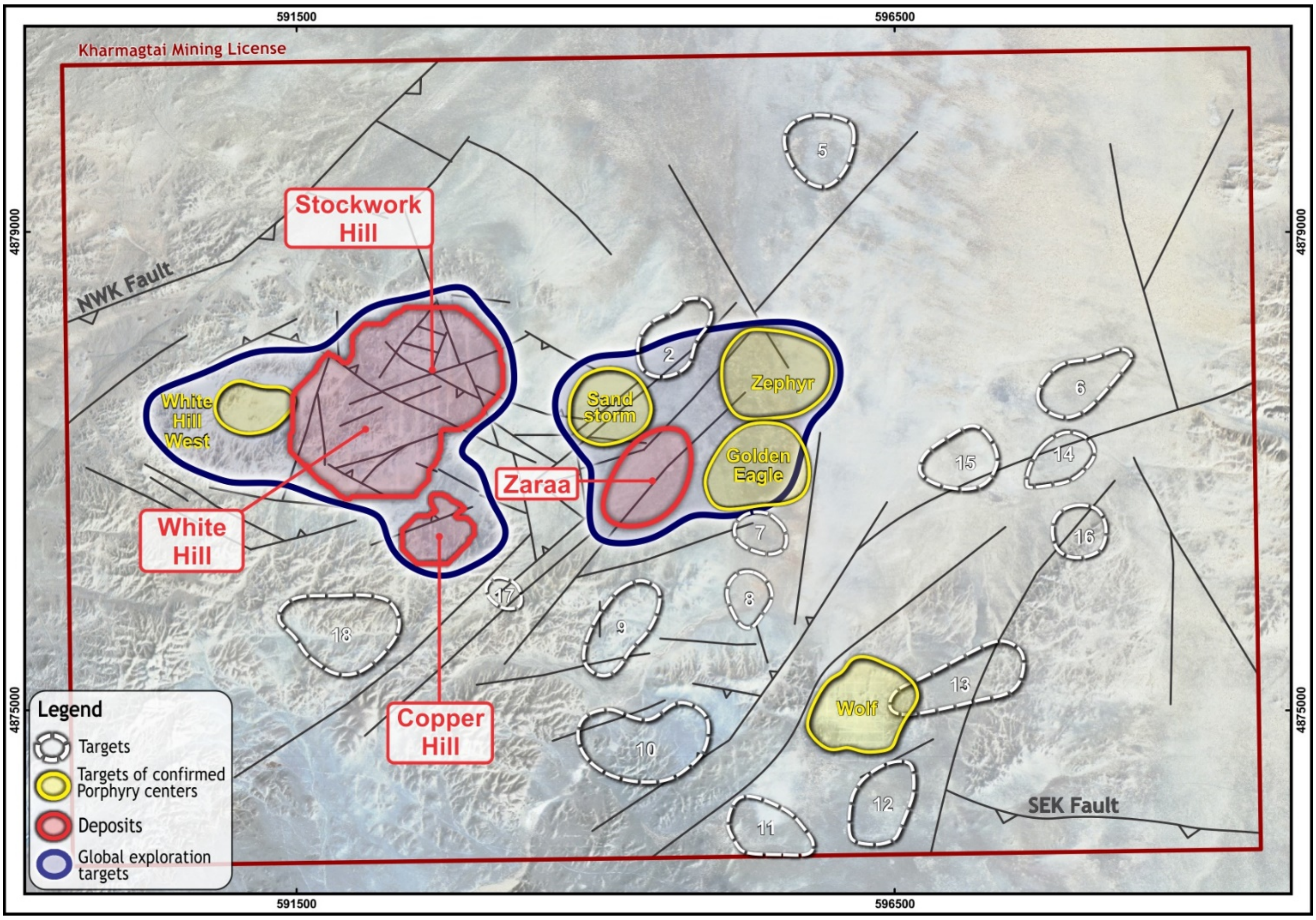

FIGURE 2: The Kharmagtai Mining Licence showing location of the Kharmagtai Deposits (Stockwork Hill, White Hill, Copper Hill) and areas covered within the Global Exploration Target.

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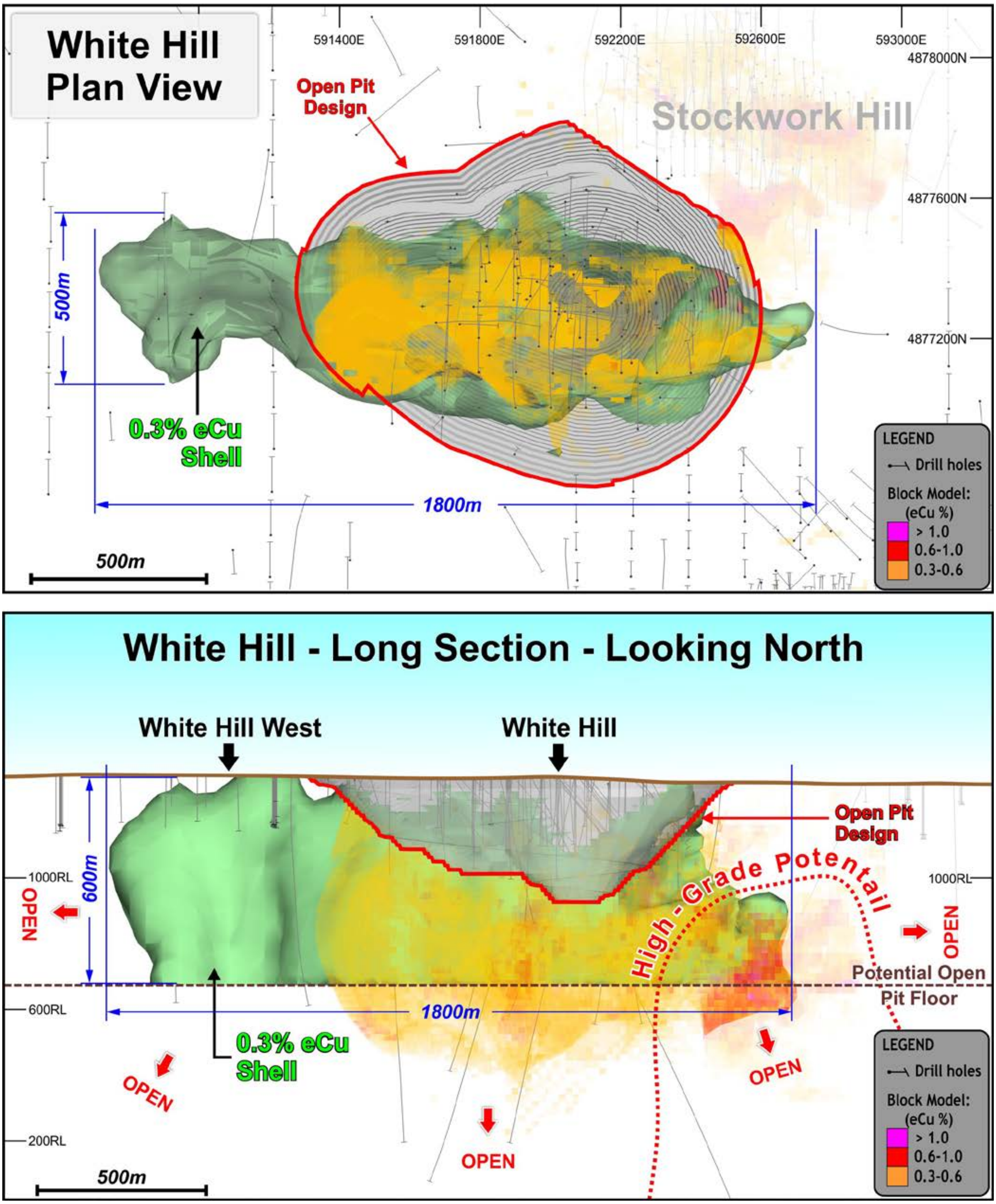

FIGURE 3: Plan and long section of White Hill showing drilling, 2018 Mineral Resource Upgrade ultimate pit and block model outside what has been reported. Dimensions showing the exploration target for 0.3%eCu, Table one only uses a 500m height dimension (rather than the depicted 600m) to compensate for and remove the mineralisation reported within the current 2018 MRE.

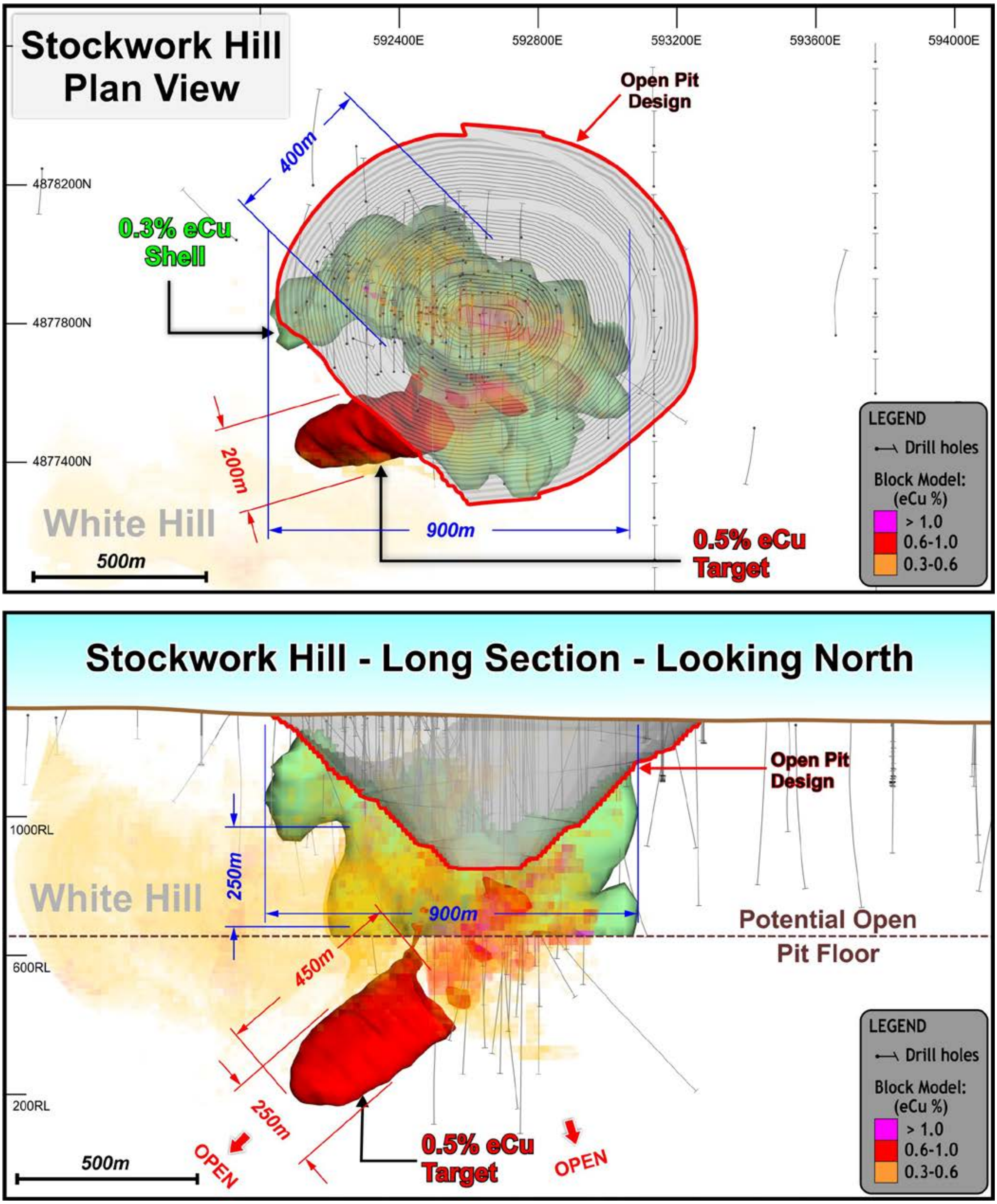

FIGURE 4: Long Section of Stockwork Hill showing 2018 Mineral Resource Upgrade ultimate pit and block model outside what was reported in the 2018 MRE. Dimensions showing the exploration target for 0.3%eCu and 0.5%eCu are shown with a floor at 600m to symbolise the potential depth of an open pit.

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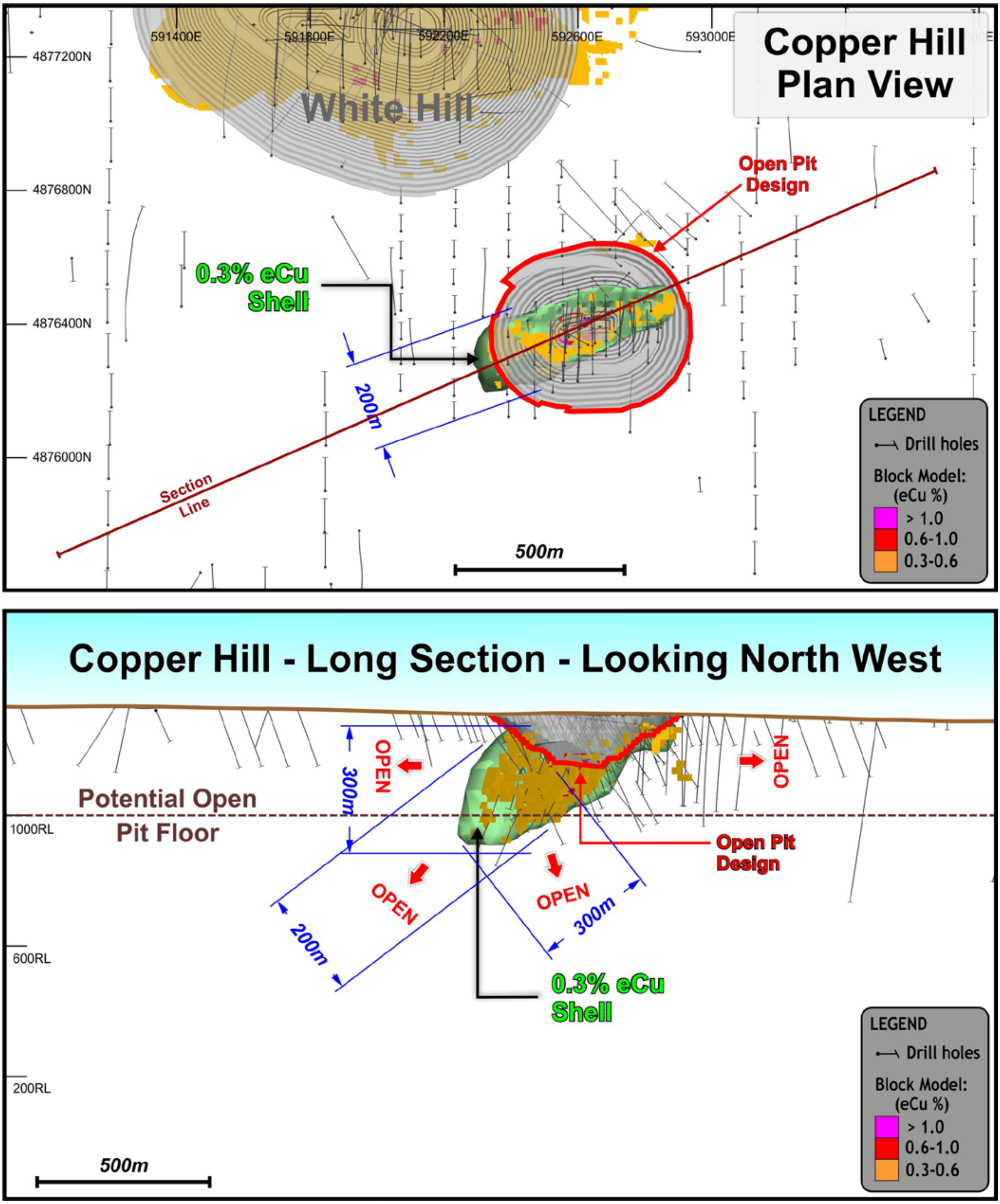

FIGURE 5: Plan and long section of Copper Hill showing 2018 Mineral Resource Upgrade ultimate pit and block model outside what was reported in the 2018 MRE. Dimensions showing the exploration target for 0.3%eCu are shown with a floor at 300m to symbolise the potential depth of an open pit. There is significant potential for repeated high-grade zones at depth down plunge of Copper Hill and drilling for this is included in the exploration plan.

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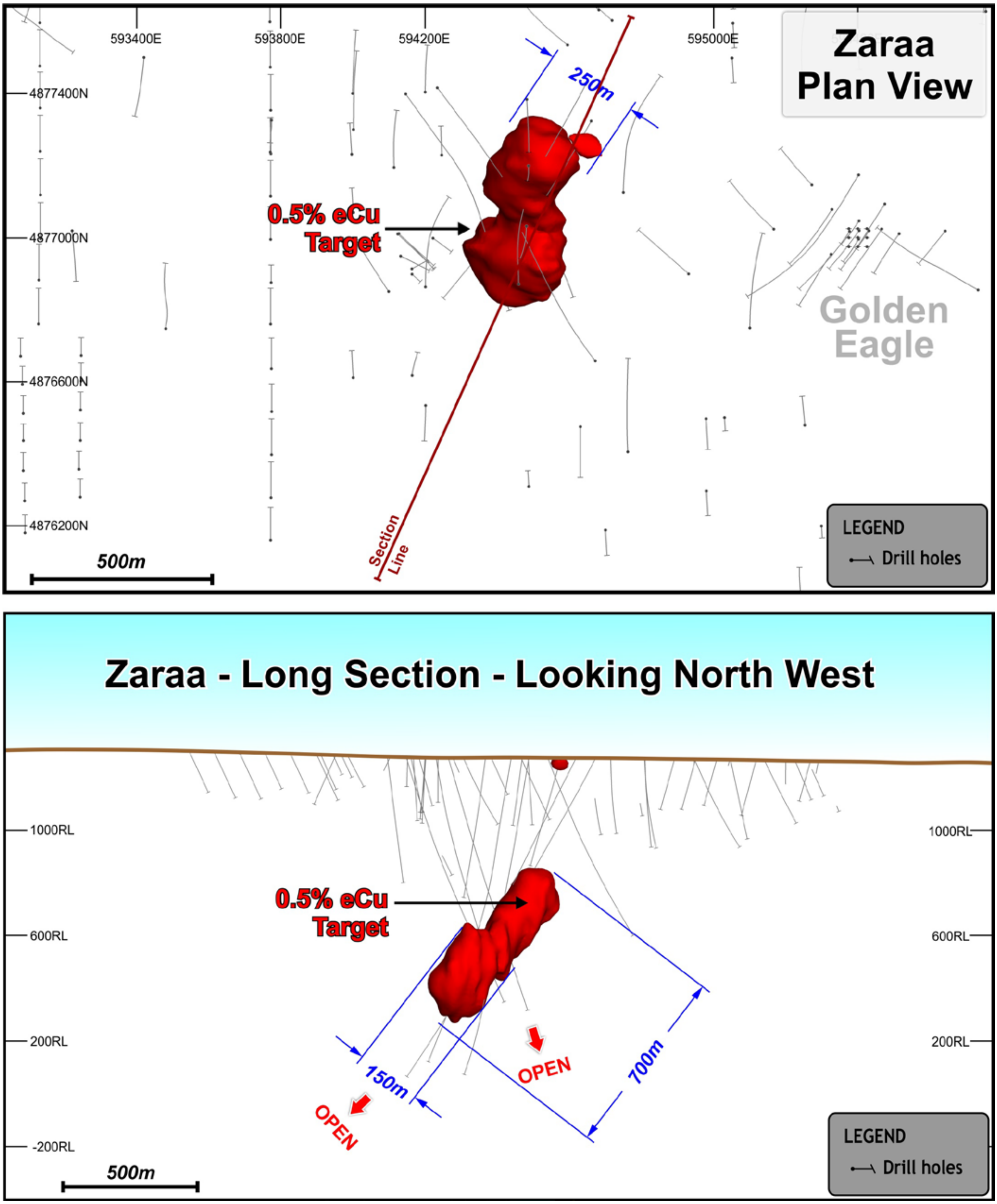
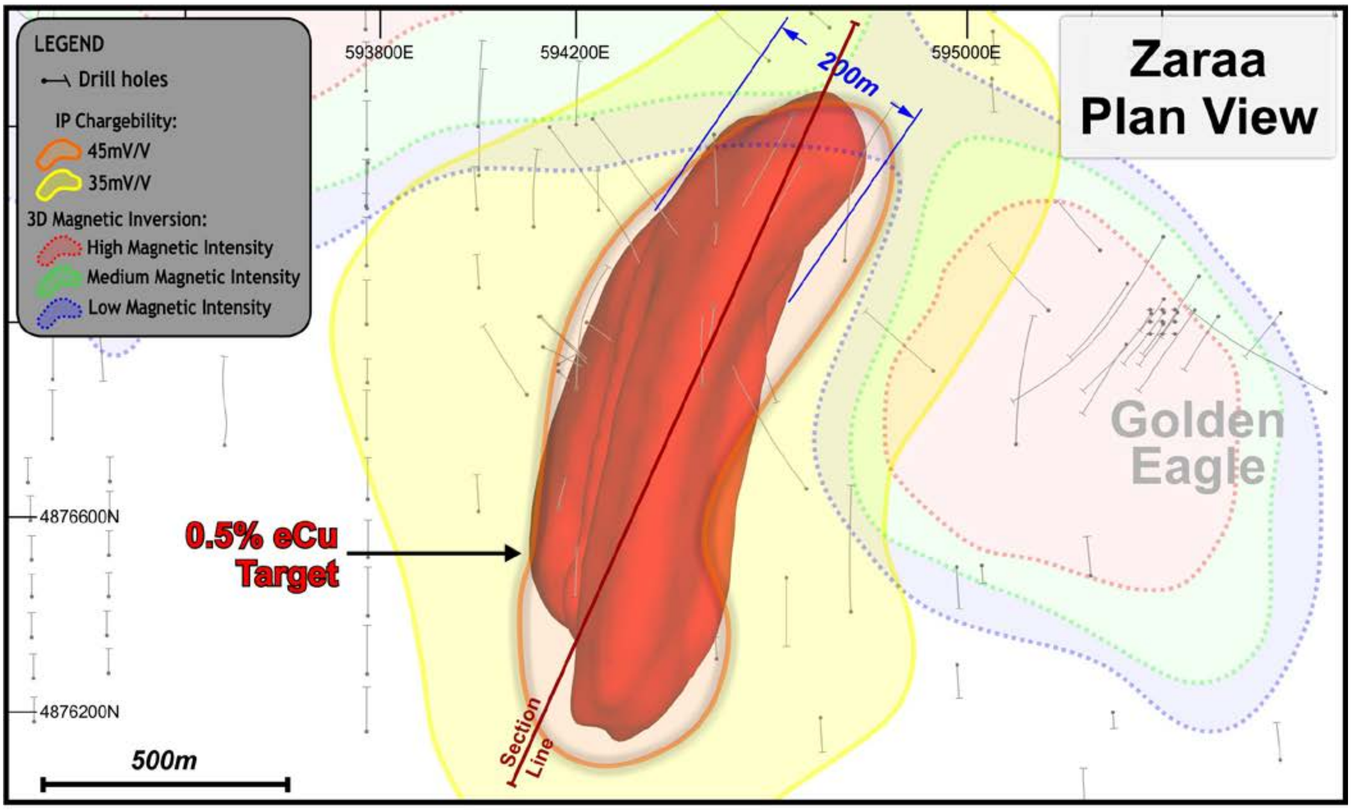


FIGURE 6: Plan and long section of Zaraa showing drilling and dimensions of Exploration Target.



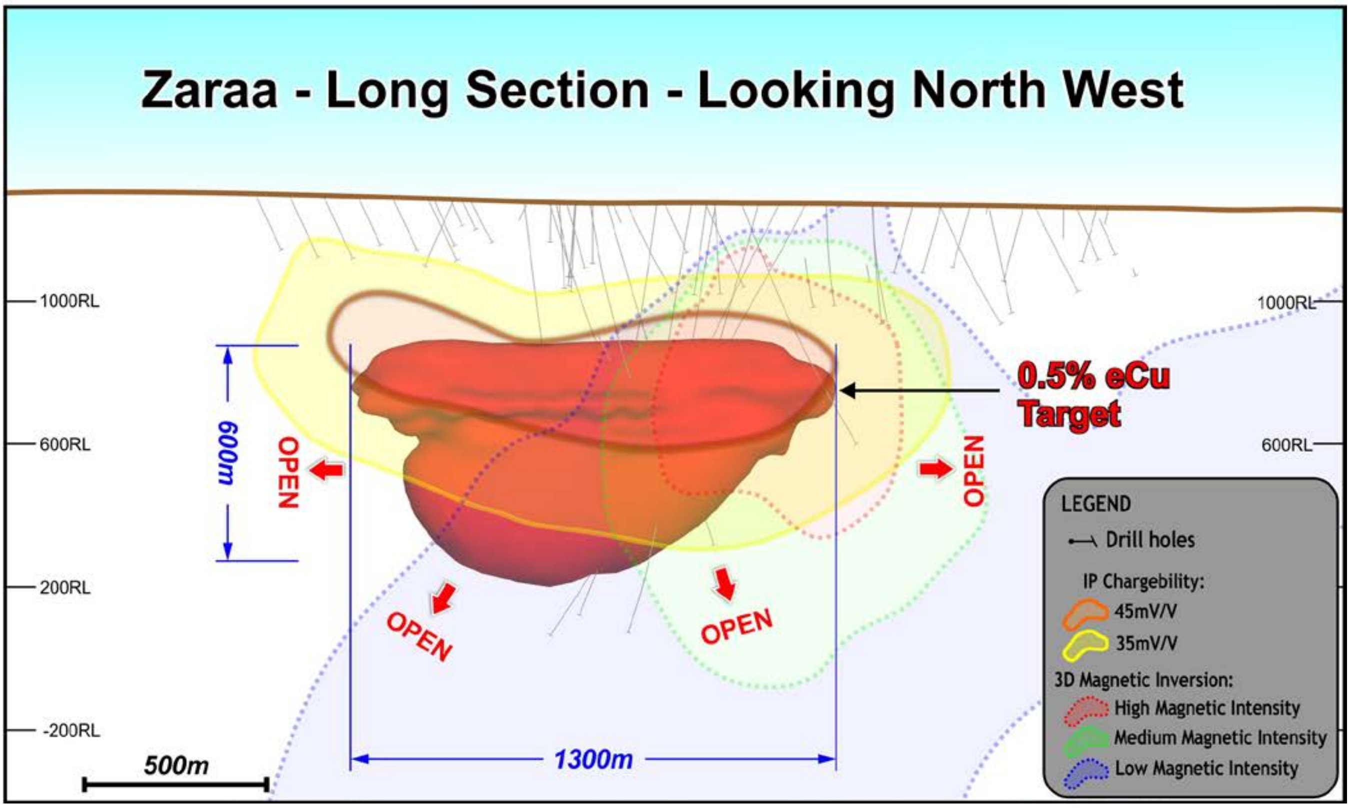


Figure 7: Plan and section of Zaraa showing extended Exploration Target based off drilling and geophysics

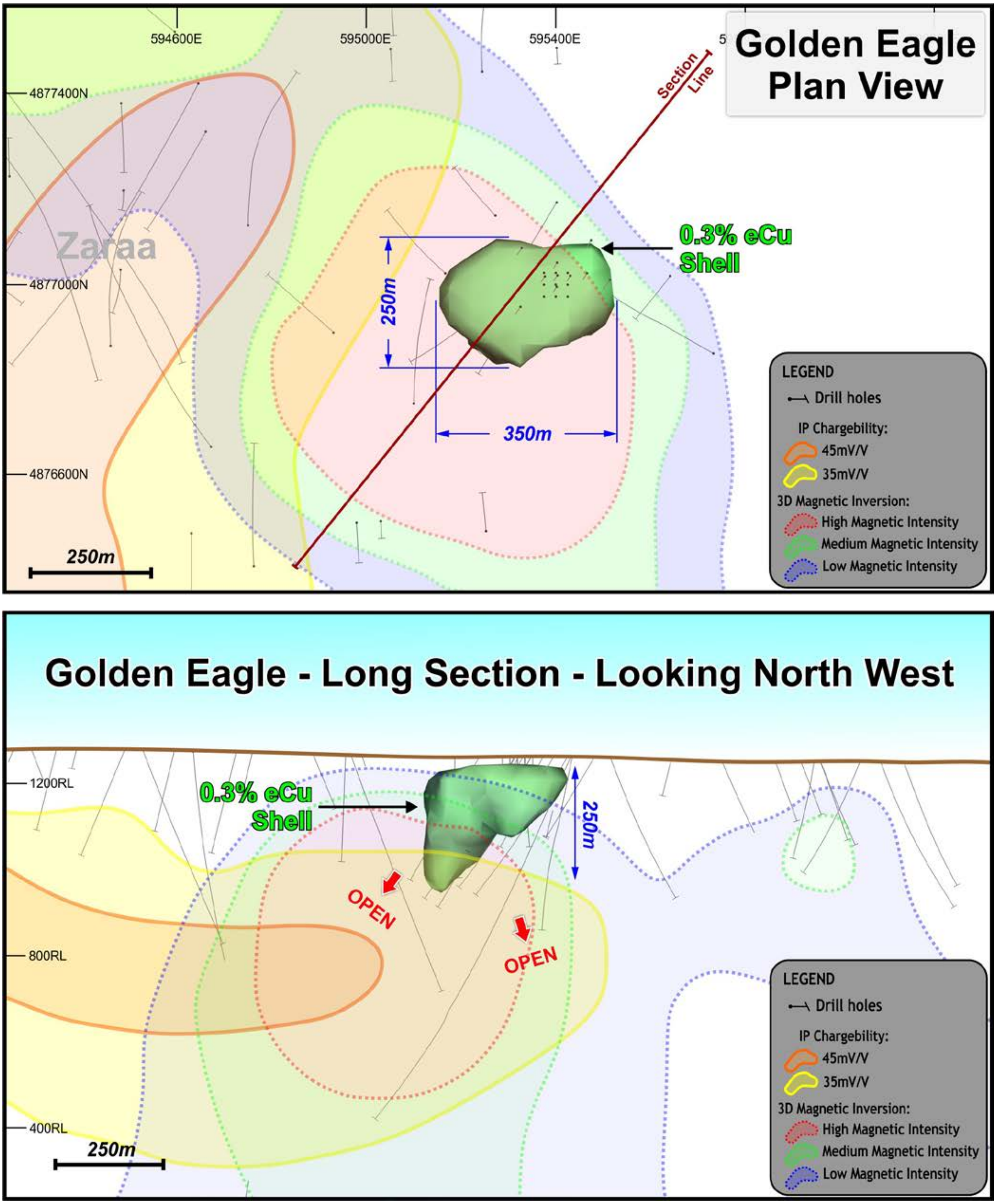


FIGURE 8: Plan and long section of Golden Eagle showing drilling, exploration target, inverted 3DIP and VRMI data and 0.3eCu boundary based off drilling.

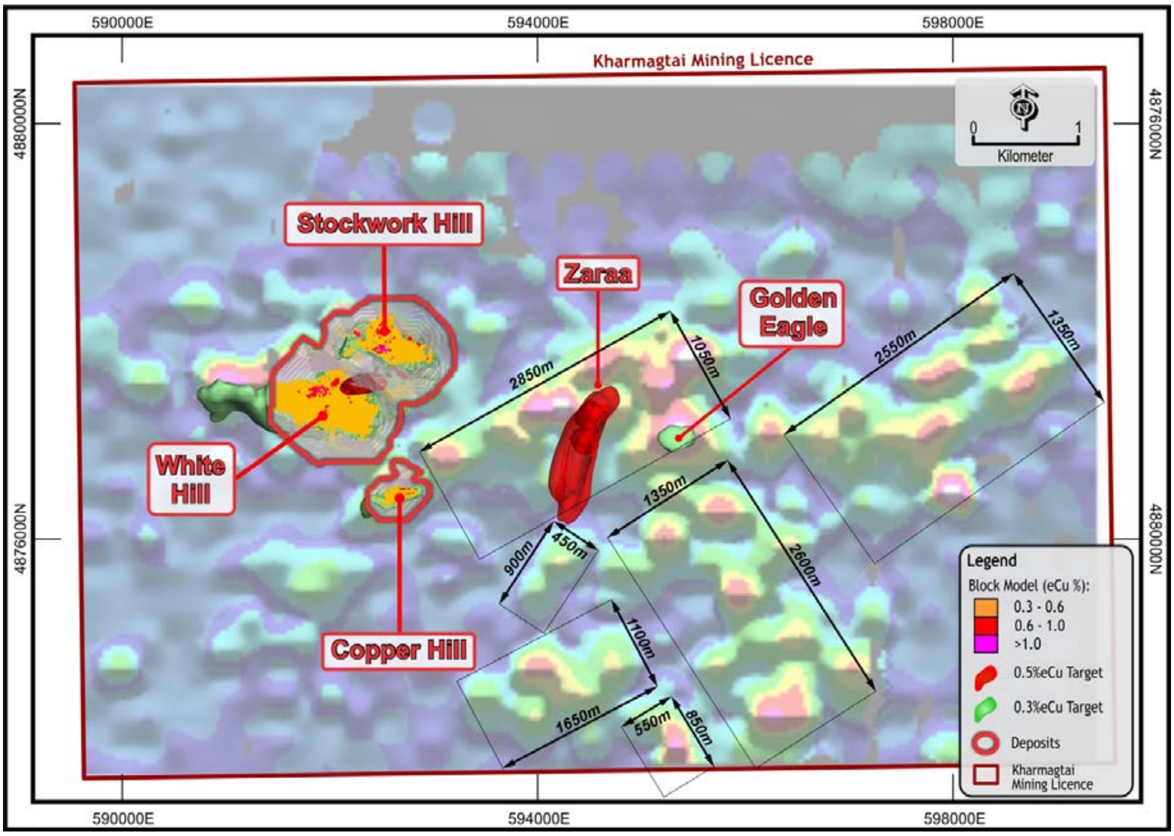


FIGURE 9: Geochemical anomalism (eCu) across the Kharmagtai Lease. The undercover initiative geochemistry program initiated in 2016 is still being followed up on. There remains a significant surface area of geochemical anomalism that required additional exploration for shallower resources within the Kharmagtai Lease.

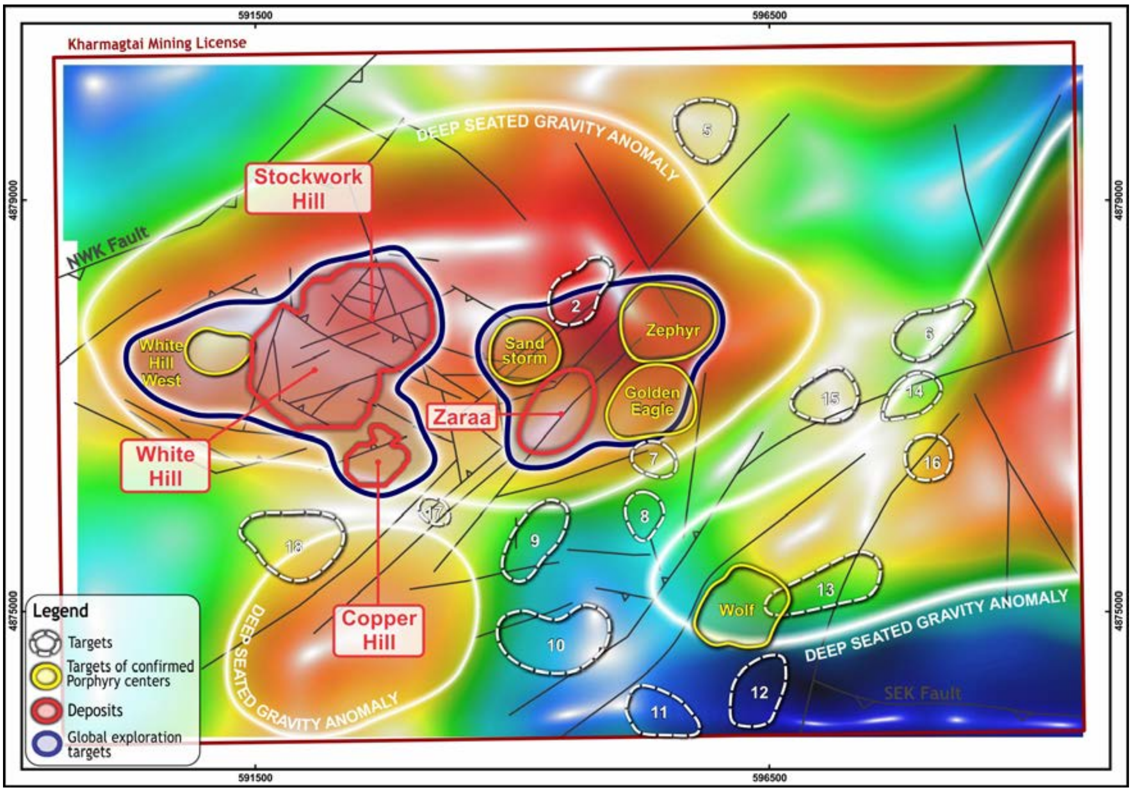


FIGURE 10: Bougier gravity anomaly beneath Kharmagtai is suggestive of a very large staging chamber beneath the known mineralisaiton

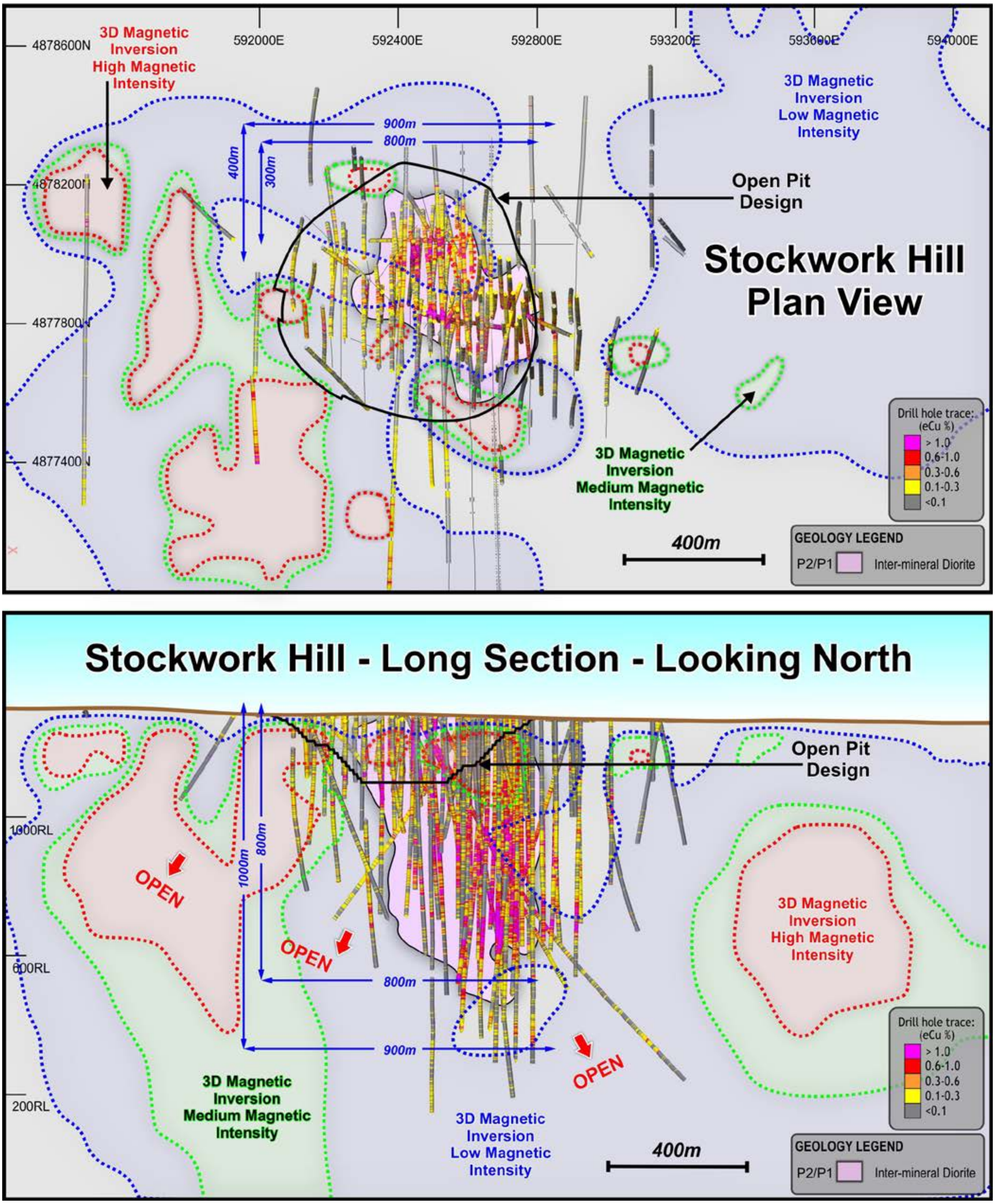


Figure 11: Plan and long section through Stockwork Hill showing high magnetic zones which may represent repeated zones of untested stockwork mineralisation.

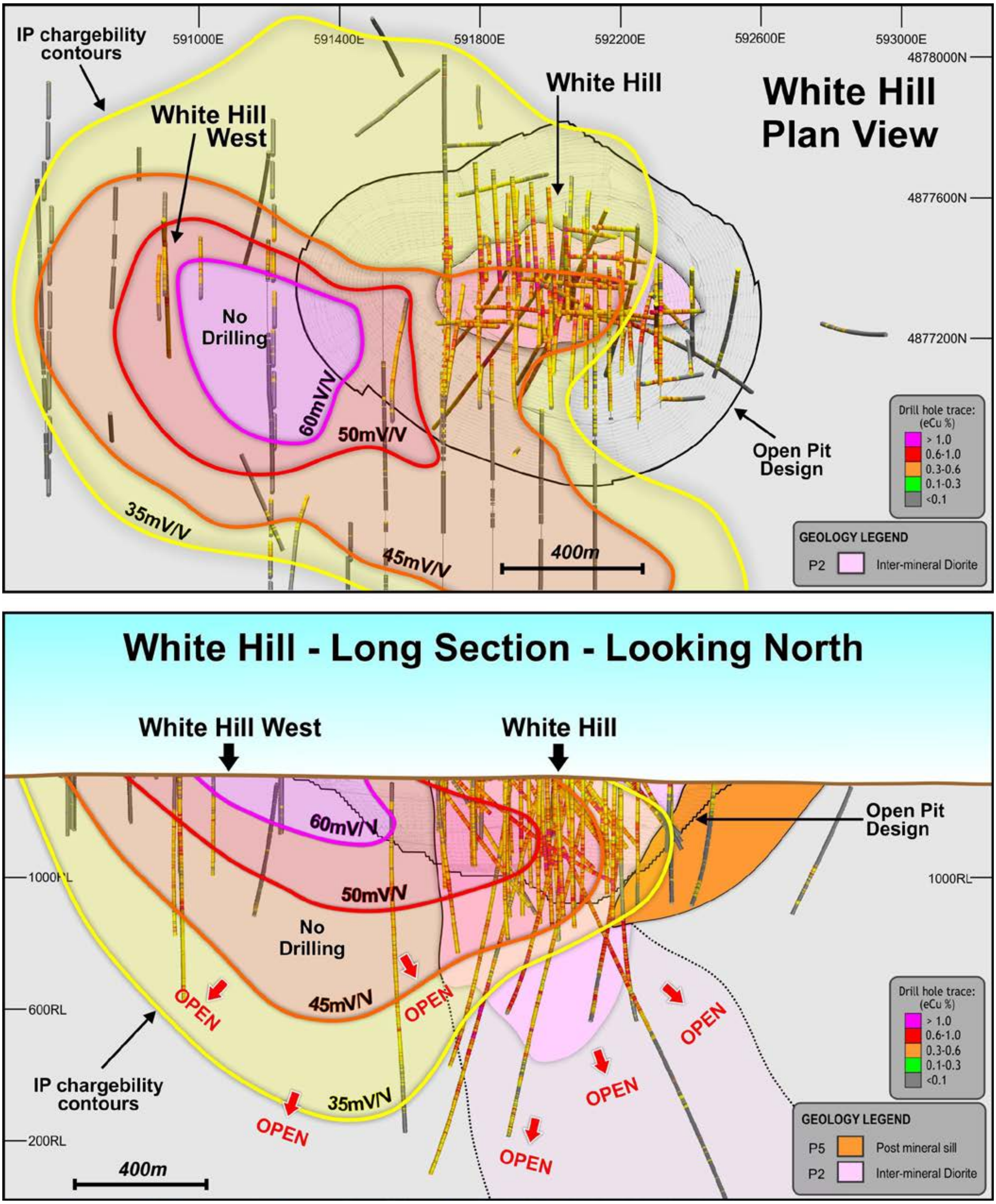


Figure 12: Plan and long section through White Hill showing large IP anomaly associated with the western extensions to the deposit. IP anomalies normally form above the zones of higher-grade mineralisation within porphyry deposits suggesting potential significant extensions to White Hill.

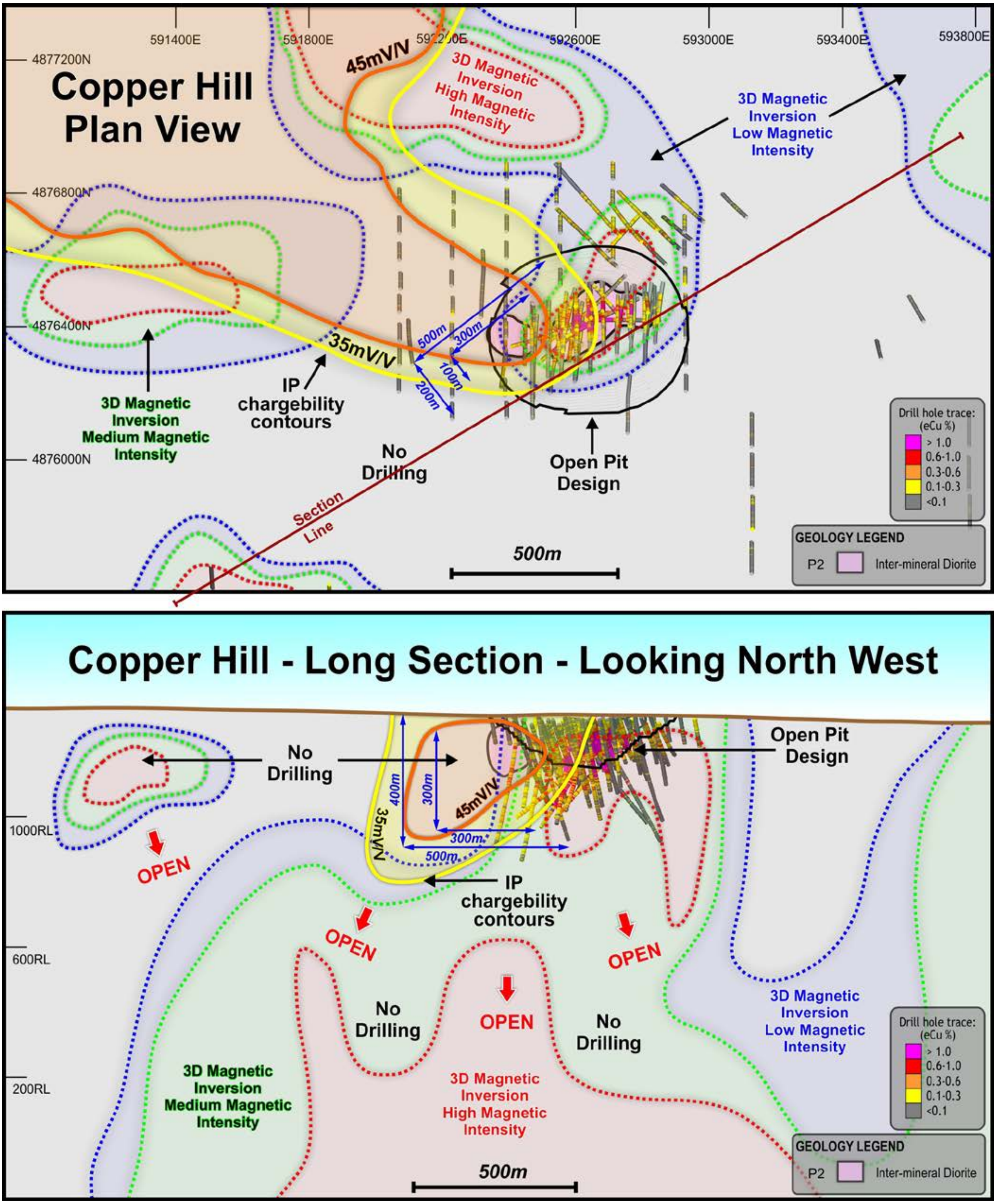


Figure 13: Plan and long section of Copper Hill showing deep high magnetic bodies which may represent repeat zones of high-density stock working below the main deposit. An IP chargeable high lies directly above this zone.

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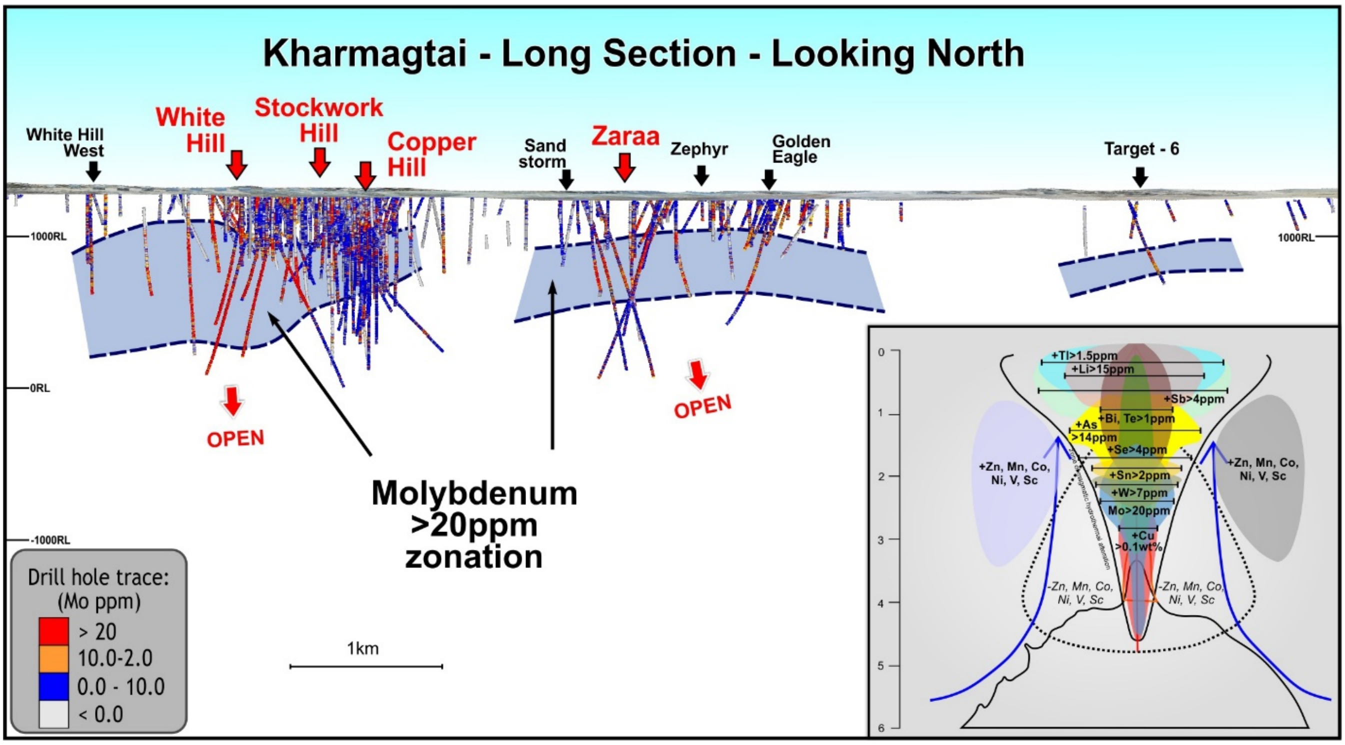

Figure 14: The molybdenum geochemistry across the lease highlights a second system, a large copper gold system stacked beneath the existing deposits. At Stockwork Hill the molybdenum signature has been destroyed by the overprinting tourmaline breccia. Elsewhere it is well preserved across the entire lease.

COMPETENT-QUALIFIED PERSON STATEMENT

The information in this announcement that relates to exploration results is based on information compiled by Dr Andrew Stewart who is responsible for the exploration data, comments on exploration target sizes, QA/QC and geological interpretation and information. Dr Stewart, who is an employee of Xanadu and is a Member of the Australasian Institute of Geoscientists, has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity he is undertaking to qualify as the "Competent Person" as defined in the 2012 Edition of the "Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves" and the National Instrument 43-101. Dr Stewart consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.

COPPER EQUIVALENT CALCULATIONS

The copper equivalent (eCu) calculation represents the total metal value for each metal, multiplied by the conversion factor, summed and expressed in equivalent copper percentage with a metallurgical recovery factor applied. The copper equivalent calculation used is based off the eCu calculation defined by CSA in the 2018 Mineral Resource Upgrade.

Copper equivalent (eCu) grade values were calculated using the following formula:

eCu = Cu + Au * 0.62097 * 0.8235,

Where:

- Cu - copper grade (%)
- Au - gold grade (g/t)
- 0.62097 - conversion factor (gold to copper)
- 0.8235 - relative recovery of gold to copper (82.35%).

The copper equivalent formula was based on the following parameters (prices are in USD):

- Copper price - 3.1 $/lb (or 6834 $/t)
- Gold price - 1320 $/oz
- Copper recovery - 85%
- Gold recovery - 70%

Relative recovery of gold to copper = 70% / 85% = 82.35%.

CAUTIONARY STATEMENTS REGUARDING EXPLORATION TARGETS

The Exploration Target is conceptual in nature as there has been insufficient exploration to define a Mineral Resource. It is uncertain if further exploration will result in the determination of a Mineral Resource under the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, the JORC Code" (JORC 2004). The Exploration Target is not being reported as part of any Mineral Resource or Ore Reserve and previously reported areas of Mineral Resource have been extracted from the Exploration Target.

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APPENDIX 1: INDEPENDENT VALUATION (VALMIN 2015) OF THE KHARMAGTAI PROPERTY

APPENDIX 1

Independent Valuation of the Kharmagtai Copper Project, Mongolia

Report Prepared for

Xanadu Mines Limited

Report Prepared by

srk consulting

SRK Consulting (Australasia) Pty Ltd

XML003

November 2019

Independent Valuation of the Kharmagtai Copper Project, Mongolia

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SRK Project Number XML003

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Executive Summary

In September 2019, SRK Consulting (Australasia) Pty Ltd (SRK) was engaged by Xanadu Mines Limited (Xanadu or the Company) to prepare an Independent Valuation capable of meeting the public reporting requirements of the VALMIN Code (2015) relating to the Kharmagtai Project (the Project) in Mongolia. SRK understands that this Report is to be included in an announcement to the Australian Securities Exchange (ASX) by the Company. Xanadu's other Mongolian assets, comprising the Yellow Mountain and Red Mountain projects, are not to be considered as part of this Valuation Report.

This Report has been prepared to the standard of, and is considered by SRK to be, an Independent Valuation Report under the guidelines of the VALMIN Code (2015).

Outline of work program

SRK's work program included an outline of the valuation methodologies and principal assumptions adopted by SRK in determining the valuation ranges and preferred value, including details of the relevant market factors.

SRK has completed an evaluation of all available information pertaining to the Project and selected the most appropriate valuation techniques based on the perceived maturity of the Project and the availability and quality of information.

SRK has not carried out any Mineral Resource or Ore Reserve estimation/ calculation activities for the purposes of its Report.

Project overview

The Kharmagtai Project is an advanced copper-gold exploration project located in the Omnogovi Province of southern Mongolia and secured under a mining licence.

The Kharmagtai Project consists of a number of separate sulphide deposits (Stockwork Hill, White Hill and Copper Hill) and two new deposits, Golden Eagle and Zaraa, recently identified by Xanadu. Mineral Resource and/ or Exploration Target estimates have been prepared for all of these deposits. The Mineral Resources are classified as Indicated and Inferred in accordance with the guidelines of the JORC Code (2012).

It should be highlighted that the Exploration Targets outlined within this Report are conceptual in nature as there has been insufficient exploration to define a Mineral Resource. It is uncertain if further exploration will result in the determination of a Mineral Resource under the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, the JORC Code' (JORC 2004). The Exploration Target is not being reported as part of any Mineral Resource or Ore Reserve and the areas of mineralisation that have been reported in the 2018 Mineral Resource upgrade have been removed from the Exploration Target area.

Mineralisation at Kharmagtai is directly related to typical porphyry-style vein and hydrothermal breccia assemblages. These assemblages demonstrate both spatial zonation and temporal overprinting relationships commonly associated with porphyry copper-gold systems. Kharmagtai is part of a large porphyry system, with multiple overprinting phases of intrusions and mineralisation.

Valuation

SRK has considered methods commonly used to value mineral assets at these stages of development. SRK has produced a Market Value as defined by the VALMIN Code (2015).

All monetary figures used in this Report are expressed in United States dollar (US$) terms, unless otherwise stated. The final valuation is presented in US$. This Report has adopted a Valuation Date of 28 October 2019.

SRK's valuation of the Kharmagtai Project is summarised in Table ES-1. SRK has relied upon the Comparative Transaction methodology to derive its selected value range for the stated Mineral Resources, Exploration Targets and the exploration tenure. Secondary support for the derived values is carried out using the Yardstick and Peer Analysis methods.

SRK's preferred value for the defined Mineral Resources at Kharmagtai has been determined as the average of the Malmyzh, Ereen and Handgait and Koksay transaction multiples (or ~0.70% MTR, metal transaction ratio).

SRK's preferred value for the Exploration Targets has been selected as the mid-point of the range as SRK has no preference to either end of the range.

SRK's preferred value for the Exploration Potential was determined in consideration of the average of the normalised transaction multiples which was US$130,000/km^2. SRK has chosen to position its preferred above the mid-point in recognition that the exploration potential is associated with a granted mining licence, enabling the rapid progression towards mining should appropriate technical studies prove positive.

SRK considers these preferred values are broadly supported by the secondary valuation methods.

Table ES-1: Kharmagtai Project – Valuation summary

Valuation Basis	Valuation Methodology	Total Contained Mineral Value MTR basis (US$M)	Contained MTR basis CuEq (Mt)	Project Multiple Low	Project Multiple High	Project Multiple Preferred	Low (US$M)	High (US$M)	Preferred (US$M)
Resources	Comparable Sales (MTR %)	18,070	3.14	0.45%	0.90%	0.70%	81.3	162.6	126.5
Resource	Peer Analysis (MTR US$/CuEq t)	18,070	3.14	50	80		156.9	251.0	
Resources	Yardstick (%)	18,070	3.14	0.5% - 1.0%	1.0% - 2.0%		115.4	230.8	
						Selected	**81.3**	**162.6**	**126.5**
Global Exploration targets	Comparable Sales (MTR %)	38,237	6.64	0.05%	0.15%	0.10%	19.1	57.4	38.2
Global Exploration targets	Yardstick (%)	38,237	6.64	0.10%	0.30%		38.2	114.7	
						Selected	**19.1**	**57.4**	**38.2**
Oxide Exploration targets	Comparable Sales (MTR %)	402	0.07	0.05%	0.15%	0.10%	0.2	0.6	0.4
Oxide Exploration targets	Yardstick (%)	402	0.07	0.10%	0.30%		0.4	1.2	
						Selected	**0.2**	**0.6**	**2.4**
Valuation Basis	**Valuation Methodology**	Total **Contained** Area (km²)	**Area Valued (km²)***	**Project Multiple Low**	**Project Multiple High**	**Project Multiple High**	**Low (US$M)**	**High (US$M)**	**Preferred (US$M)**
Remaining Exploration Area	Comparable Sales (US$/km²)	65.5	56.45	130,000	230,000	150,000	7.3	13.0	8.5
Remaining Exploration Area	Geoscientific Method	65.5	56.45				3.4	8.9	
						Selected	**7.3**	**13.0**	**8.5**
						Total	**108.0**	**233.6**	**173.6**

Note: *Resource (4.05 km²) and Exploration Target (6 km²) areas are subtracted from total area.

Based on its review of the values implied by the various valuation methodologies, SRK considers the market would pay in the range between US$108.0 M and US$233.6 M, with a preferred value of US$173.6 M for a 100% interest in the Kharmagtai Project, as at the Valuation Date.

After considering Xanadu’s effective and beneficial 76.5% interest, SRK considers Xanadu’s interest in the Kharmagtai Project would range between US$82.6 M and US$178.7 M, with a preferred value of US$132.8.0 M.

Table ES-2: Valuation summary – Xanadu’s 76.5% beneficial interest – as at 28 October 2019

Project/ Prospect Name	Low (US$M)	High (US$M)	Preferred (US$M)
Kharmagtai	82.6	178.7	132.8

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Disclaimer

The opinions expressed in this Report have been based on the information supplied to SRK Consulting (Australasia) Pty Ltd (SRK) by Xanadu Mines Limited (Xanadu or the Company). The opinions in this Report are provided in response to a specific request from Xanadu to do so. SRK has exercised all due care in reviewing the supplied information and the publicly available market information. While SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data and the market information. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this Report apply to the site conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report, about which SRK had no prior knowledge nor had the opportunity to evaluate.

List of Abbreviations

Abbreviation/Acronym	Meaning
%	Percentage
AIG	Australian Institute of Geoscientists
ASX	Australian Securities Exchange
Au	Gold
AusIMM	Australasian Institute of Mining and Metallurgy
CSA	CSA Global - Mining Industry Consultants
Company	Xanadu Mines Limited
Cu	Copper
Eq	Equivalent
DCF	Discounted cashflow
EV	Enterprise Value
g/t	Grams per tonne
ha	Hectares
IER	Independent Expert Report
IP	Induced polarisation
IVSC	International Valuation Standards Council
JORC Code	The Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (2012 Edition)
KIC	Kharmagtai Igneous Complex
km	Kilometres
km^2	Square kilometres
koz	Kilo ounces
kt	Kilotonnes
ktpa	Kilotonnes per annum
LOM	Life of Mine
M	Million
m	Metres
MA	Mining Associates Pty Ltd
Mineral Resources	Mineral Resources – as defined by the JORC Code (2012)
Mt	Million tonnes
Mtpa	Million tonnes per annum
MTR	Metal transaction ratio
MW	Megawatt
NI 43-101	Canadian National Instrument 43-101
PFS	Pre-Feasibility Study
ppm	Parts per million
RICS	Royal Institution of Chartered Surveyors
S&P	S&P Global Market Intelligence (formerly SNL)
SRK	SRK Consulting (Australasia) Pty Ltd
t	Tonnes
the Project	Kharmagtai Project
USD or US$	United States dollars
VALMIN Code	The Australasian Code for the Public Reporting of the Technical Assessments and Valuations of Mineral Assets (2015 Edition)
Xanadu	Xanadu Mines Limited

1 Introduction and Scope of Report

In September 2019, SRK Consulting (Australasia) Pty Ltd (SRK) was engaged by Xanadu Mines Limited (Xanadu or the Company) to prepare an Independent Valuation capable of meeting the public reporting requirements of the VALMIN Code (2015) relating to the Kharmagtai Project (the Project) in Mongolia. SRK understands that this Report is to be included in an announcement to the Australian Securities Exchange (ASX) by the Company. Xanadu's other Mongolian assets, comprising the Yellow Mountain and Red Mountain projects, are not to be considered as part of this Valuation Report.

SRK has previously prepared a value opinion of the Kharmagtai Project for Xanadu's internal use and decision-making purposes.

The Kharmagtai Project is an advanced copper-gold exploration project located in the Omnogovi Province of southern Mongolia. The Kharmagtai Project consists of a number of separate sulphide deposits (Stockwork Hill, White Hill and Copper Hill) and a new shallow oxide gold deposit, recently identified by Xanadu. Mineral Resource estimates have been prepared for all these deposits which are classified as Indicated and Inferred in accordance with the guidelines of the JORC Code (2012).

During 2019, the Kharmagtai Project has been the focus of several programs designed to advance the overall status of the project, including:

- Preliminary metallurgical testwork studies on diamond core from shallow oxide gold mineralisation at the Kharmagtai Project as announced to the ASX in March 2019
- A Scoping Study, as announced to the ASX in April 2019, based on low-level technical and economic assessments, but not considered sufficient to support the estimation of Ore Reserves in accordance to JORC Code (2012) guidelines
- Results of shallow drilling of the near-surface oxide gold at Golden Eagle and Stockwork Hill as announced to the ASX in August 2019. These prospects are considered by the Company to represent Exploration Targets in accordance with the JORC Code (2012) definition. The Company aims to rapidly convert the near-surface oxide gold Exploration Targets to Mineral Resources, so they can be included in future mining studies.

As defined in the VALMIN Code (2015), mineral assets comprise all property including (but not limited to) tangible property, intellectual property, mining and exploration tenure and other rights held or acquired in relation to the exploration, development of and production from those tenures. This may include plant, equipment and infrastructure owned or acquired for the development, extraction and processing of minerals relating to that tenure.

For this valuation, the Project and associated tenure were classified in accordance with the categories outlined in the VALMIN Code (2015):

- **Early Stage Exploration Projects** – Tenure holdings where mineralisation may or may not have been identified, but where Mineral Resources have not been identified.
- **Advanced Exploration Projects** – Tenure holdings where considerable exploration has been undertaken and specific targets have been identified that warrant further detailed evaluation, usually by drill testing, trenching or some other form of detailed geological sampling. A Mineral Resource estimate may or may not have been made, but sufficient work will have been undertaken on at least one prospect to provide both a good understanding of the type of mineralisation present and encouragement that further work will elevate one or more of the prospects to the Mineral Resources category.
- **Pre-development Projects** – Tenure holdings where Mineral Resources have been identified and their extent estimated (possibly incompletely), but where a decision to proceed with development has not been made. Properties at the early assessment stage, properties for which a decision

has been made not to proceed with development, properties on care and maintenance and properties held on retention titles are included in this category if Mineral Resources have been identified, even if no further work is being undertaken.

- **Development Projects** – Tenure holdings for which a decision has been made to proceed with construction or production or both, but which are not yet commissioned or operating at design levels. The economic viability of development projects will be proven by at least a Pre-Feasibility Study (PFS).
- **Production Projects** – Tenure holdings – particularly mines, wellfields and processing plants that have been commissioned and are in production.

SRK considers the Kharmagtai Project is currently best represented as a Pre-development Project.

1.1 Nature of the brief

SRK's work program included:

- Compiling a description of the Kharmagtai Project, including ownership status, provisions and encumbrances, project history, geological setting and resource/ target base
- Reviewing and commenting on recent exploration activities
- Reviewing the available technical information including the stated Mineral Resource estimate in accordance with the JORC Code (2102) to determine their reasonableness for valuation purposes
- Preparing an outline of the valuation methodologies and principal assumptions adopted by SRK in determining the valuation ranges and preferred value, including details of the relevant market factors.

SRK has not carried out any Mineral Resource calculation or re-estimation activities for the purposes of its Report.

1.2 Program objectives

SRK understands that this report is intended to be appended to an ASX release by Xanadu, which includes a statement regarding new Exploration Targets associated with the shallow oxide gold mineralisation at the Golden Eagle and Stockwork Hill prospects.

1.3 Reporting standard

For the avoidance of doubt, this report has been prepared according to the:

- 2015 Edition of the Australasian Code for the Public Reporting of Technical Assessments and Valuations of Mineral Assets (VALMIN Code)
- 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code).

This Report has been prepared by SRK as a Technical Assessment and Valuation Report under the VALMIN Code, as well as the Australian Securities and Investment Commission (ASIC) Regulatory Guides 111 and 112.

The peer reviewer of this Report, Mr Jeames McKibben, is a Registered Valuer and Chartered Valuation Surveyor with the Royal Institution of Chartered Surveyors (RICS). As a result, this Report may be subject to monitoring by RICS under its Conduct and Disciplinary Regulations. This Report does not comply with the RICS 2017 Valuation Standards, otherwise known as the 'Red Book', as in accordance with the VALMIN Code (2015), SRK is required to provide a valuation range that reflects the highest and lowest estimated Market Values of the Project in accordance with its mandate. In all other respects, this Report endeavours to conform as close as possible to the RICS standards without compromising the requirements of the VALMIN Code (2015), or other Australian regulatory requirements (i.e. ASIC Regulatory Guides or ASX Listing Rules).

For the purposes of the Report, value is defined as ‘Market Value’ as per the VALMIN Code (2015), this being the amount of money (or the cash equivalent or some other consideration) for which a mineral asset should change hands on the date of valuation between a willing buyer and a willing seller in an arm’s length transaction after appropriate marketing, wherein the parties each acted knowledgeably, prudently and without compulsion.

1.4 Work program

This assignment commenced in September 2019 with a review of technical information relating to the Project as supplied by Xanadu, as well as other publicly available data and information sourced by SRK, including data from subscription databases such as S&P Global Market Intelligence database services. Company information was uploaded to an online data room and SRK consultants worked through the datasets and the supplied geological model and completed research on comparable market transactions to assist with the valuation.

The Kharmagtai Project was not visited for the purposes of this report; however, SRK has previously conducted work in this area and as such has a reasonably good understanding of the project setting.

1.5 Key data sources

Data and information relating to the Project as used by SRK during the preparation of this Report are referenced throughout the Report. SRK has also relied upon discussions with Xanadu’s management and consultants for information contained within this assessment.

1.6 Effective Date

The Effective Date of this Report is 28 October 2019, and the Valuation Date is 28 October 2019.

1.7 Project team

This Report has been prepared by a team of consultants from SRK’s office in Australia. SRK’s Project Manager for this Project was Jeames McKibben, a Principal Consultant (Project Evaluation), who has over 25 years’ experience.

Table 1-1: Team members and allocated scope topics

Consultant Name/ Position	Role
Jeames McKibben, Principal Consultant (Project Evaluation)	Project management and peer review
Ben Jupp, Senior Consultant (Geology)	Geology and Resources
Mathew Davies, Senior Consultant (Project Evaluation)	Report compilation and valuation

Details of the qualifications and experience of the consultants who have carried out the work in this Report, who have extensive experience in the mining industry and are members in good standing of appropriate professional institutions, are set out below.

Jeames McKibben, BSc Hons, MBA, Chartered Valuation Surveyor (MRICS), FAusIMM(CP), MAIG – Principal Consultant

Jeames McKibben is an experienced international mining professional having operated in a variety of roles including consultant, project manager, geologist and analyst over more than 25 years. He has a strong record in mineral asset valuation, project due diligence, independent technical review and deposit evaluation. As a consultant, he specialises in mineral asset valuations and Independent Technical Reports for equity transactions and in support of project finance. Jeames has been responsible for multi-disciplinary teams covering precious metals, base metals, bulk commodities (ferrous and energy) and other minerals in Australia, Asia, Africa, North and South America and Europe. He has assisted numerous mineral companies, financial, accounting and legal institutions and has been actively involved in arbitration and litigation proceedings. Jeames is a current member of the VALMIN Code and IMVAL Committees.

Ben Jupp, BSc Hons, Senior Consultant

Ben Jupp has over 15 years' experience specialising in geology and 3D geological modelling. He has worked in several commodities within Australia and internationally, including BIF-hosted iron ore, nickel, lode gold, porphyry copper, lead-zinc and rutile. His experience is varied and includes multi-scale mineral and oil and gas prospectivity studies, mineral targeting studies, structural mapping in Africa and Australia and 3D geological modelling at both deposit and regional scales. Ben has a strong technical knowledge inclusive of structural geology, geophysical analysis, seismic interpretation, structural mapping, geochemistry, GIS and geophysical modelling. Ben has expertise in several 3D modelling software packages, including GOCAD-SKUA, leapfrog and GeoModeller.

Mathew Davies, BSc Hons (Exploration & Resource Geology), MAusIMM – Senior Consultant

Mathew Davies is a geologist with over nine years' experience in the Australian mining industry. Mathew's multi-commodity experience includes coal and mineral exploration, with technical competency in exploration management and planning, drill rig supervision, core logging and sampling, regional- to prospect-scale geological mapping, target generation, prospectivity analysis, legislative compliance, and reporting. Mathew is also competent in the development of geological models using Leapfrog and Minex, supported by a high level of competence in spatial packages such as ArcGIS and MapInfo. Mathew has been developing his skills in project valuation and has experience in valuation for a broad range of commodities and geological settings, including coal, iron ore, copper, gold, lead, zinc, silver, tin, nickel, molybdenum, phosphate, potash, uranium, mineral sands, niobium, tantalum and graphite.

1.8 Limitations, reliance on information, declaration and consent

1.8.1 Limitations

SRK's opinion contained herein is based on technical information provided to SRK by Xanadu throughout the course of SRK's assessments as described in this Report, which in turn reflects various technical and economic conditions at the time of writing. Such technical information as provided by Xanadu was taken in good faith by SRK. SRK has not independently verified the Mineral Resource estimates by means of recalculation.

This Report includes technical information which requires subsequent calculations to derive subtotals, totals, averages and weighted averages. Such calculations may involve a degree of rounding. Where such rounding occurs, SRK does not consider it to be material.

As far as SRK has been able to ascertain, the information provided Xanadu was complete and not incorrect, misleading or irrelevant in any material aspect. Xanadu has confirmed in writing to SRK that full disclosure has been made of all material information and that to the best of its knowledge and understanding, the information provided by Xanadu was complete, accurate and true and not incorrect, misleading or irrelevant in any material aspect. SRK has no reason to believe that any material facts have been withheld.

1.8.2 Statement of SRK independence

Neither SRK, nor any of its personnel involved in the preparation of this Report have:

- any material present or contingent interest in Xanadu or any of the properties or mineral assets described herein; or
- any association with Xanadu, or their related parties, which may lead to bias.

SRK warrants that its team of consultants is competent to undertake the Report. To the best of SRK's knowledge and belief, having made reasonable enquiries, SRK has no conflicts, real or perceived, capable of preventing SRK from performing the requested services.

SRK has no beneficial interest in the outcome of this technical assessment capable of affecting its independence.

1.8.3 Indemnities

As recommended by the VALMIN Code (2015), Xanadu has provided SRK an indemnity, under which SRK is to be compensated for any liability and/ or any additional work or expenditure resulting from any additional work required:

- which results from SRK's reliance on information provided by Xanadu or by Xanadu not providing material information; or
- which relates to any consequential extension workload through queries, questions or public hearings arising from this Report.

1.8.4 Consent

SRK consents to this Report being included, in full, in Xanadu's ASX submission in the form and context in which the technical assessment is provided. SRK provides this consent on the basis that the technical assessment expressed in the summary and in the individual sections of this Report is considered with, and not independently of, the information set out in the complete report. SRK does not consent to this Report being used for any other purpose.

1.8.5 Consulting fees

SRK was remunerated with a time-based fee for the preparation of this Report, with no part of the fee contingent on the conclusions reached, or the content or future use of this Report. Except for these fees, SRK has not received and will not receive any pecuniary or other benefit, whether direct or indirect, for or in connection with the preparation of this report.

SRK's estimated fee for completing this Report is based on its normal professional daily rates plus reimbursement of incidental expenses. The fees are agreed based on the complexity of the assignment, SRK's knowledge of the assets and availability of data. The fee payable to SRK for this engagement is estimated at approximately A$19,000.

2 Valuation Preface

2.1 Introduction

SRK was engaged by Xanadu to provide a market value for the Kharmagtai Project in Mongolia.

The opinions expressed, and conclusions drawn with respect to this valuation opinion are appropriate at 28 October 2019. The valuation is only valid for this date and may change with time in response to variations in economic, market, legal or political conditions in addition to the receipt of new exploration information.

All monetary figures used in this Report are expressed in either United States dollar (US$) terms, unless otherwise stated. The final valuation is presented in US dollars.

2.2 Valuation approaches

While the VALMIN Code (2015) states that the selection of the valuation approach and methodology is the responsibility of the practitioner, where possible, SRK considers a number of methods.

The aim of this approach is to compare the results achieved using different methods to select a preferred value within a valuation range. This reflects the uncertainty in the data and interaction of the various assumptions inherent in the valuation.

The VALMIN Code (2015) outlines three generally accepted valuation approaches:

1. Market Approach
2. Income Approach
3. Cost Approach.

The *Market Approach* is based primarily on the principle of substitution and is also called the comparison transactions approach. The mineral asset being valued is compared with the transaction value of similar mineral assets, transacted in an open market (CIMVAL, 2003). Methods include comparable transactions, metal transaction ratio (MTR) and option or farm-in agreement terms analysis.

The *Income Approach* is based on the principle of anticipation of economic benefits and includes all methods that are based on the income or cashflow generation potential of the mineral asset (CIMVAL, 2003). Valuation methods that follow this approach include Discounted Cashflow (DCF) modelling, Monte Carlo Analysis, Option Pricing and Probabilistic methods.

The *Cost Approach* is based on the principle of contribution to value (CIMVAL, 2003). Methods include the appraised value method and multiples of exploration expenditure, where expenditures are analysed for their contribution to the exploration tenure of the mineral asset.

The applicability of the various valuation approaches and methods vary depending on the stage of exploration or development of the mineral asset, and hence the amount and quality of the information available on the mineral potential of the assets. Table 2-1 presents the various valuation approaches for the valuation of mineral assets at the various stages of exploration and development.

Table 2-1: VALMIN – page 29 – valuation approaches according to development status

Valuation Approach	Exploration Projects	Pre-development Projects	Development Projects	Production Projects
Market	Yes	Yes	Yes	Yes
Income	No	In some cases	Yes	Yes
Cost	Yes	In some cases	No	No

Source: VALMIN Code (2015).

The market-based approach to valuation is generally accepted as the most suitable approach for valuation of a Production Project.

An income-based method, such as a DCF model is commonly adopted for assessing the value of a tenure containing a deposit where an Ore Reserve has been reported following an appropriate level of technical studies and to accepted technical guidelines such as the JORC Code (2012). However, an income-based method is not considered an appropriate method for deposits that are less advanced, i.e. where there is no declared Ore Reserve and supporting mining and related technical studies.

The use of cost-based methods, such as considering suitable multiples of exploration expenditure is best suited to exploration properties, i.e. prior to estimation of Mineral Resources. As current Mineral Resources have been declared for the development and advanced exploration projects, cost-based methods of valuation are considered less suitable than market-based methods of valuation for these properties.

In general, these methods are accepted analytical valuation approaches that are in common use for determining Market Value (defined below) of mineral assets, using market-derived data.

The **'Market Value'** is defined in the VALMIN Code (2015) as, in respect of a mineral asset, the amount of money (or the cash equivalent of some other consideration) for which the Mineral Asset should change hands on the Valuation Date between a willing buyer and a willing seller in an arm's length transaction after appropriate marketing wherein the parties each acted knowledgeably, prudently and without compulsion. The term 'Market Value' has the same intended meaning and context as the International Valuation Standards Council (IVSC) term of the same name. This has the same meaning as Fair Value in Regulatory Guide 111. In the 2005 edition of the VALMIN Code this was known as Fair Market Value.

The **'Technical Value'** is defined in the VALMIN Code (2015) as an assessment of a Mineral Asset's future net economic benefit at the Valuation Date under a set of assumptions deemed most appropriate by a Practitioner, excluding any premium or discount to account for market considerations. The term 'Technical Value' has an intended meaning that is similar to the IVSC term 'Investment Value'.

Valuation methods are, in general, subsets of valuation approaches. For example, the income-based approach comprises several methods. Furthermore, some methods can be considered to be primary methods for valuation while others are secondary methods or rules of thumb that are considered suitable only to benchmark valuations completed using primary methods.

The methods traditionally used to value exploration and development properties include:

- Multiples of exploration expenditure (MEE)
- Joint venture terms (expenditure-based)
- Geoscience rating (e.g. Kilburn – area-based)
- Comparable market value (real estate based)
- Metal transaction ratio (MTR) analysis (ratio of the transaction value to the gross dollar metal content, expressed as a percentage – real estate based)
- Yardstick/ rule of thumb (e.g. $/resource or production unit, percentage of an in situ value)
- Geological risk.

In summary, however, the various recognised valuation methods are designed to provide an estimate of the mineral asset or property value in each of the various categories of development. In some instances, a particular mineral asset or property or project may comprise assets which logically fall under more than one of the previously discussed development categories.

2.3 Valuation basis

In estimating the value of Xanadu's assets as at the valuation date, SRK has considered various valuation methods within the context of the VALMIN Code (2015). SRK has considered the Mineral Resources and Exploration Potential associated with the Project.

The valuation method applied depends on the relative maturity of assessment for each asset, as well as the amount of available data supporting the Project. In preparing its valuation of the Project, SRK has considered the three main approaches (income, market and cost) as well as the available methodologies under each approach.

Table 2-2: Valuation basis

Development Stage	Description	Valuation basis
Pre-development	Current focus of exploration work program including stated Mineral Resources and Exploration Targets	Market: Comparable transactions Yardstick
Early to advanced stage exploration	Associated tenure not currently the focus of the exploration work program	Market: Comparable transactions Cost: Geoscientific rating Cost: Multiples of exploration expenditure

2.4 Valuation methodology

In this instance, SRK has been requested to provide an Independent Valuation of the Kharmagtai Project incorporating the currently stated Mineral Resources and Exploration Targets at the Project, in addition to the exploration potential of the tenure outside of the defined Resource and Exploration Target areas.

When only a Mineral Resource has been outlined and its economic viability remains to be established (i.e. there is no Ore Reserve), typically SRK employs a 'rule of thumb' approach to resource valuation. This means allocating a dollar value to each resource tonne in the ground based on recent transaction data with secondary support as implied by standard industry yardsticks. Where appropriate, discounts are applied to the estimated contained mineralisation to reflect SRK's opinion of the uncertainty in the estimates.

Exploration Targets may be valued similarly to defined Mineral Resources but typically include a substantial discount to reflect the lower levels of confidence or lack of supporting data underpinning such estimates.

Where no Mineral Resources/ Exploration Targets have been defined, SRK typically considers the value of a project on an area basis using similar transaction data involving projects without defined resources. Further support may be provided through the use of rating methods which rely on cost estimates.

For polymetallic projects containing more than one metal or commodity, such as Kharmagtai, it is common to adopt a metal transaction ratio (MTR) for valuation purposes. The MTR is the ratio of the transaction value (as implied by transactions involving comparable projects) to the gross dollar metal content (as implied by the contained metal held in Mineral Resources for the comparable project), expressed as a percentage. The MTR enables direct comparison of projects based on metal content and is used for valuation purposes only. It does not consider ultimate metal recoverability as required by JORC Code (2012) and hence caution should be used when assessing metal content for any other purpose.

2.5 Value

2.5.1 Introduction

To value Xanadu's Mineral Resources/ Exploration Potential at Kharmagtai, SRK has carried out a search for publicly available information on market transactions involving similar assets that have occurred in the period leading up to, or about, the Effective Date of this valuation.

In doing so, SRK has primarily considered the market transactions for copper and gold assets in similar geopolitical jurisdictions to Mongolia, which include China, Kazakhstan, Kyrgyzstan, Cambodia, Indonesia, Philippines, Papua New Guinea and Laos. These developing countries are host to large porphyry and epithermal copper-gold projects in the Asian and South Pacific regions. Furthermore, SRK has cross-checked the resultant values as implied by the comparatives using the Yardstick method (for stated Mineral Resources and Exploration Targets), as well as the Geoscientific rating (or Kilburn) method for the exploration potential of tenures outside of the defined resource/ target areas.

SRK notes that the transaction dataset compiled by SRK for analysis extends over an extended period of time (2010–2019). While SRK typically considers only transactions occurring within two years prior to the Valuation Date, in this instance SRK has selected a longer time period in order to establish a meaningful dataset. To account for differences in market sentiment, SRK has normalised the transaction multiples using the difference between the relevant commodity price at the time of the transaction and the relevant current commodity price. Both the raw and normalised values are presented, where adjustments have been made.

2.5.2 Resource based multiples

SRK has reviewed Mineral Resource transactions involving broadly comparable projects (i.e. similar geographic/ geological setting and styles of mineralisation) over the past 10 years for analysis. Of the 128 transactions identified, only 66 transactions were supported by sufficient information to derive meaningful implied value multiples (US$/resource tonne or US$/km²).

SRK's analysis of the implied value multiples based on the reported Mineral Resource is described in Figure 2-1 and Table 2-3. Details of the comparative transactions are presented in Appendix A.

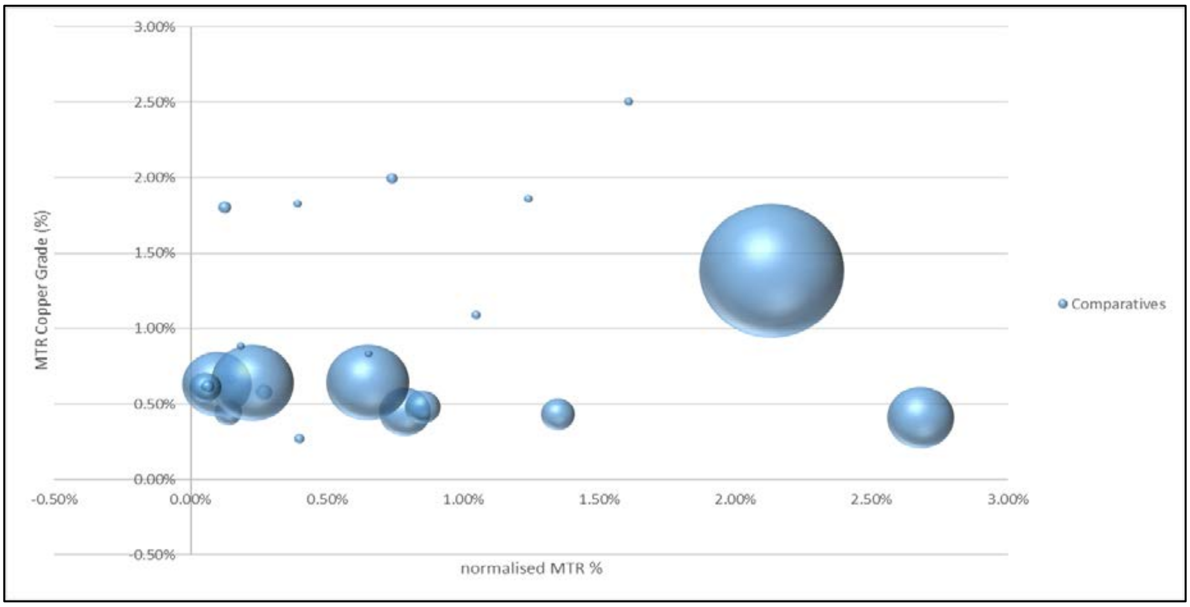

Figure 2-1: Analysis of resource multiples vs MTR copper grade (size of the bubble denotes total contained copper tonnes)

Note: Outliers have been removed for graphical purposes.

Source: SRK analysis.

Table 2-3: Resource based multiple transaction analysis for projects containing primarily copper and gold

Statistical analysis	Transaction Resource multiple – Raw (MTR)	Transaction Resource multiple – Normalised (MTR)
All resource multiples		
Minimum	0.04%	0.05%
Median	0.65%	0.74%
Average	1.94%	1.92%
Maximum	12.83%	10.34%
Weighted average	1.55%	1.41%
All resource multiples (excluding outliers)		
Minimum	0.04%	0.05%
Median	0.58%	0.65%
Average	0.80%	0.74%
Maximum	3.24%	2.68%
Weighted average	1.48%	1.34%
Preferred porphyry project multiples (Advanced to Feasibility Stage Only)		
Minimum	0.04%	0.05%
Median	0.28%	0.25%
Average	0.48%	0.42%
Maximum	1.63%	1.35%
Weighted average	0.46%	0.44%

2.5.3 Area based multiples

SRK's analysis of the implied multiples based on the area under tenure is described in Figure 2-2 and Table 2-4. Details of the comparative transactions are presented in Appendix A.

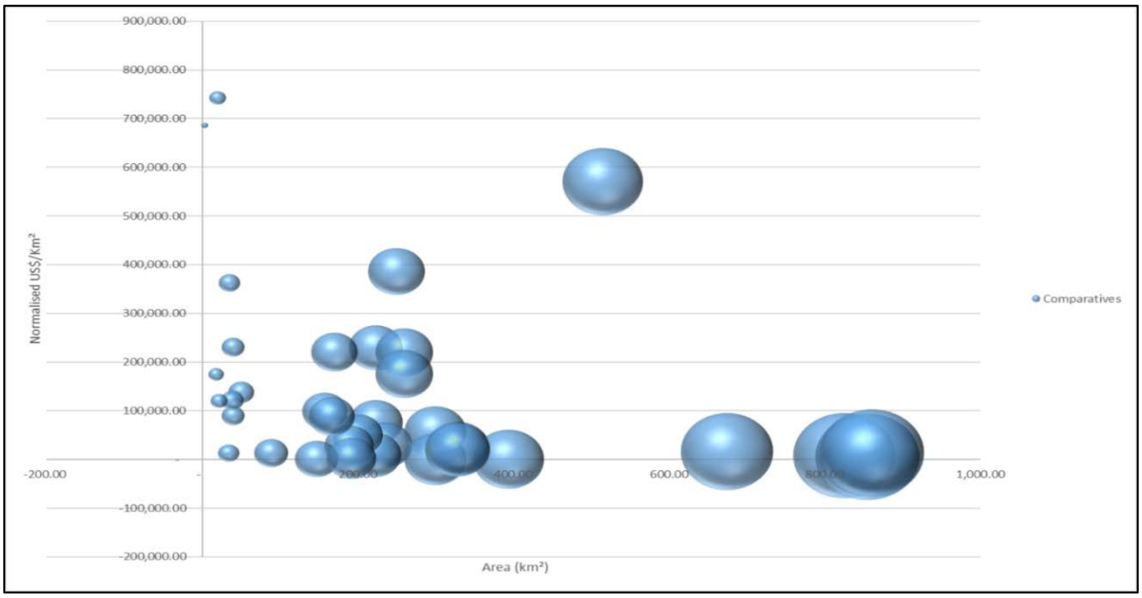

Figure 2-2: Analysis of area multiples vs total area (size of bubbles denotes total area under tenure)

Note: Outliers have been removed for graphical purposes.

Source: SRK analysis.

Table 2-4: Area based multiple transaction analysis for copper-gold exploration projects

Statistical analysis	Transaction Resource multiple – Raw (US$/km²)	Transaction Resource multiple – Normalised (US$/km²)
All area multiples		
Minimum	250.61	311.47
Median	67,835.24	83,888.30
Average	148,801.94	176,309.64
Maximum	1,379,538.72	1,677,510.02
Weighted average	76,482.92	93,080.24
All area multiples (excluding projects with declared Mineral Resources)		
Minimum	250.61	311.47
Median	39,307.54	66,087.51
Average	119,367.74	139,975.10
Maximum	714,157.02	742,577.44
Weighted average	63,417.29	77,238.92
Porphyry project multiples		
Minimum	587.36	688.47
Median	74,121.07	76,158.28
Average	105,256.15	119,963.13
Maximum	453,074.43	570,043.13
Weighted average	105,824.32	126,018.17
Porphyry project area multiples in Mongolia		
Minimum	4,545.45	8,516.33
Median	106,378.61	114,021.97
Average	115,385.25	120,109.67
Maximum	266,989.20	230,783.39
Weighted average	69,574.76	67,780.74
Porphyry project area multiples with total area less than 50 km^2		
Minimum	10,723.53	13,009.58
Median	124,737.82	129,453.46
Average	114,710.96	127,985.82
Maximum	205,234.33	230,783.39
Weighted average	115,210.72	126,873.82

3 Other Considerations

3.1 Commodity trends and prices

3.1.1 Copper

According to the Office of the Chief Economist at the Australian Department of Industry, Innovation and Science (September 2019 edition), trade tensions and reduced economic activity have led to recent volatility in copper prices. Reduced industrial activity in China and concerns around world economic growth weighed on prices, which reached a low of US$5,585/tonne at the start of September. Concerns about US tariffs are putting further pressure on prices which have averaged US$5,858/tonne or a 4% decline year on year.

Looking forward prices are expected to stabilise as production constraints contribute to an ongoing deficit in the copper markets. Multiple shutdowns and changes in ore grades have constrained recent copper mine production and refining capacity. Ongoing stimulus spending is likely to support higher consumption, which will support prices going forward. However, competing risks from trade tensions remain a negative risk to price growth.

Prices are currently forecast to grow at an average annual rate of 5.6% over the outlook period, to average US$6,620/tonne in 2021 supported by increased consumption reaching 25 Mt globally by 2021.

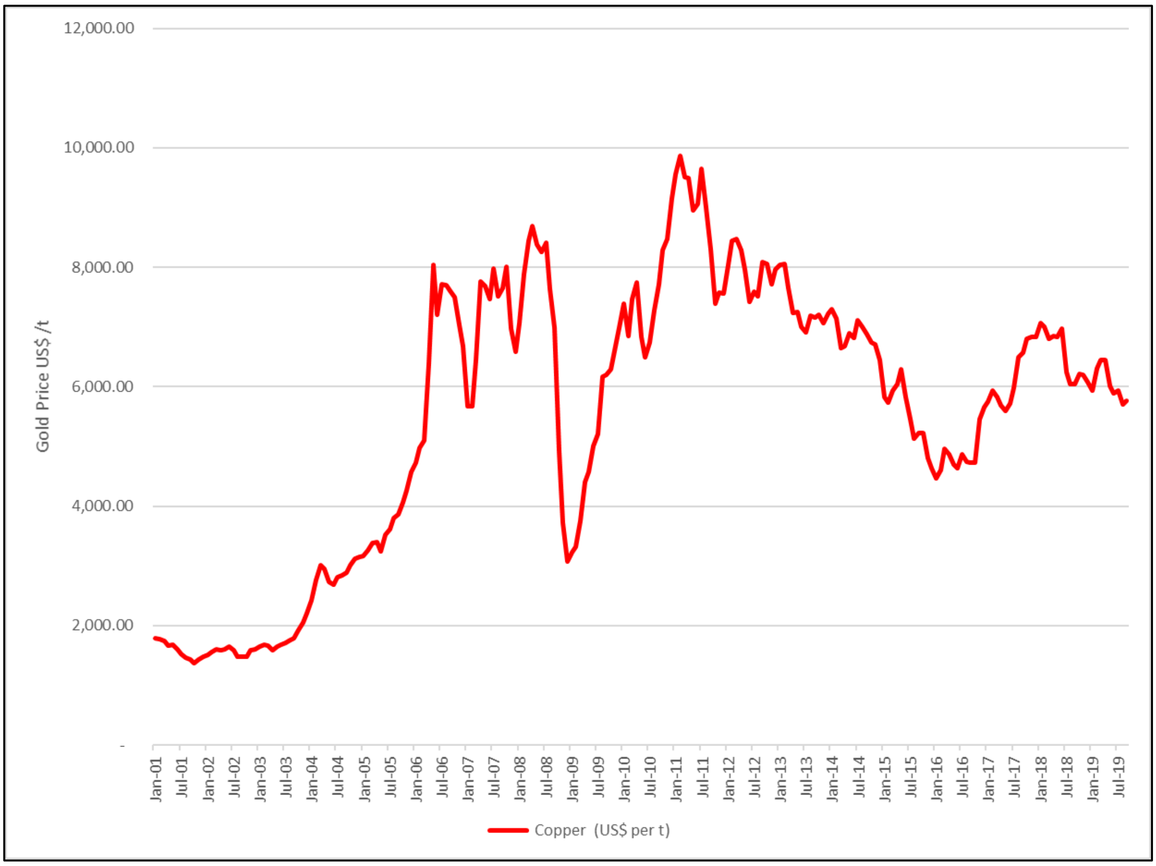

Figure 3-1: Copper price

Source: 20 Year Copper Prices – World Bank Commodity Price Data.

3.1.2 Gold

The London Bullion Market Association (LBMA) gold price reached a six-year high of US$1,547/ounce on 3 September 2019, as a result of geopolitical instability and trade tension. Gold is expected to perform well over the remainder of 2019, as markets respond to ongoing trade tensions and geopolitical problems. The Brexit uncertainty has risen following the United Kingdom Parliament's vote to block a 'no deal' Brexit and calling another general election. Civil unrest in Hong Kong shows no signs of abating near term. The stalled US and North Korea nuclear talks pose a risk to regional (east Asia) and global security, while the confrontation between the US and Iran has the potential to escalate.

As gold faces higher demand as a safe haven asset, gold prices are expected to lift to an average US$1,470/ounce in 2020, before falling to an average US$1,450/ounce in 2021.

Gold consumption is forecast to grow by 3.7% in 2020 and 1.2% in 2021 driven by central bank gold buying. Retail investment is also driving demand with a forecast 7.3% increase in 2020 and a further 3.0% growth in 2021. Similarly, jewellery demand is forecast to rise 7.5% in 2020 and a further 4.6% growth in 2021.

Gold supply is also forecast to increase at an average annual growth rate of 1.8% in 2020 and 2021, reaching 4,939 tonnes in 2021, supported by increased mine and scrap output. Miners in particular are benefitting from the higher gold prices allowing for mine expansions and extensions to mine life resulting in forecast increases of 2.0% in 2020 and 1.6% in 2021. Production in China continues to fall, with 4% year on year declines a result of environmental reforms introduced in 2017 which continue to impact production.

Reflecting these issues, the US gold price is forecast to average US$1,390/ounce in 2019.

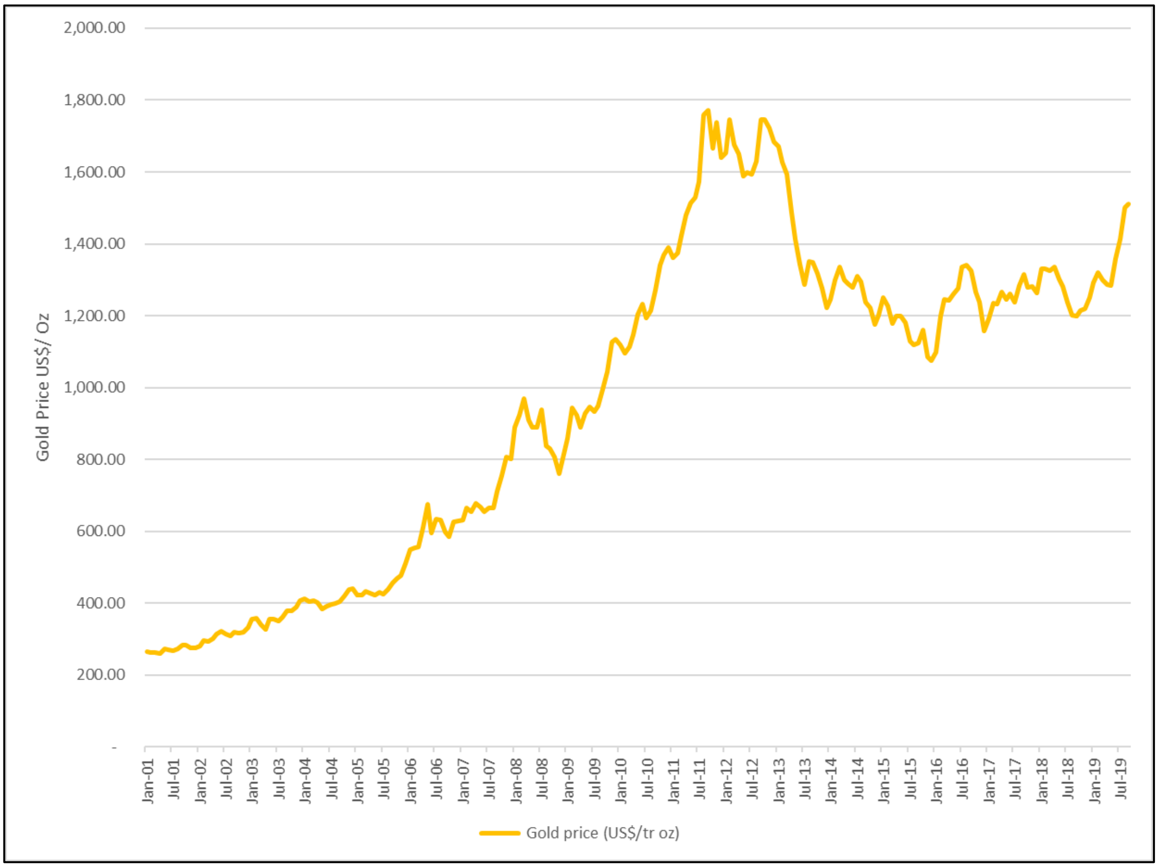

Figure 3-2: Copper price

Source: 20 Year Gold Prices – World Bank Commodity Price Data.

3.2 Previous valuations

The VALMIN Code (2015) requires that an Independent Valuation Report should refer to other recent valuations or Expert Reports undertaken on the mineral properties being assessed.

3.2.1 Mining Associates – March 2015

In March 2015, Mining Associates Pty Ltd (MA) prepared a valuation for inclusion in an Independent Expert Report (IER) prepared by Grant Thornton.

MA determined the final value of a 100% interest in the Kharmagtai Project to reside in the range US$9 M to US$29 M, with a preferred value of US$15 M. The methods and summary of values used to determine MA's final value are outlined in Table 3-1, and are broadly the same as those adopted by SRK in the current valuation.

SRK notes that at the time of MA's valuation, the Kharmagtai Project was less advanced than present, with a total defined Mineral Resource of 133 Mt averaging 0.36% Cu and 0.37 g/t Au (as reported in accordance with Canadian National Instrument (NI) 43-101 guidelines). MA also noted Xanadu had an Exploration Target of between 250 Mt and 400 Mt at an average grade of 0.25–0.30% Cu and 0.25–0.30 g/t Au.

SRK notes that since the preparation of MA's 2015 valuation, Xanadu has undertaken significant exploration and significantly increased (4.5 fold) the reported Mineral Resources at Kharmagtai, as well as defined the new shallow oxide gold mineralisation.

SRK notes that at the time of MA's 2015 valuation, the Kharmagtai Project lacked sufficient size and scale to support development. This factor been in part addressed with the updated (increased) Mineral Resource base as outlined in 2018 and the addition of additional Exploration Targets in 2019. Given these differences, SRK does not consider MA's 2015 valuation to have a material bearing on the current valuation exercise.

Table 3-1: Valuation summary of the Kharmagtai Project by Mining Associates Pty Ltd as at 25 March 2015

Summary of Valuation									
Project	**Market Approach**		**Empirical Approach**		**Cost Approach**		**Preferred**		
	Comparable Transactions		Yardstick t/Cueq		Expenditure				
	Low USDM	High USDM	Low USDM	High USDM	Low USDM	High USDM	Low USDM	Preferred USDM	High USDM
Kharmagtai	**$16.7**	**$19**	**$9**	**$17**	**$14**	**$29**	**$9**	**$15**	**$29**

Source: Mining Associates, 2015

3.3 Previous transactions

3.3.1 Kharmagtai – February 2014

In February 2014, Xanadu and its joint venture company, Mongol Metals LLC, acquired a 90% interest in Oyut Ulaan LLC, the holder of a 100% interest in the Kharmagtai Project, from a wholly owned subsidiary company to Turquoise Hill Resources Ltd.

Under the original terms as announced to the ASX on 3 February 2014, consideration of US$14 M was to be paid in three instalments:

- A US$500,000 deposit prior to entering into the agreement
- US$3.5 M upon registration of Mongol Metals with the Mongolian State Registration Office as holder of 90% of the shares in Oyut Ulaan (Completion)
- US$10 M of deferred consideration payable no later than 18 months after completion.

At the date of this Report, Xanadu had met all expenditure necessary to earn an 85% interest in Mongol Metals, equal to a 76.5% beneficial interest in the entire Kharmagtai Project.

On 18 January 2016, the deferred acquisition consideration for the Project was reduced by over US$1 M. The total transaction value implies a total project value of US$18.3 M.

4 Xanadu's Mongolian Assets

Xanadu holds controlling interests in three mineral projects in Mongolia (Kharmagtai, Red Mountain and Yellow Mountain) which are considered prospective for porphyry and epithermal copper and/ or gold mineralisation. The locations of Xanadu's Mongolian projects are provided in Figure 4-1.

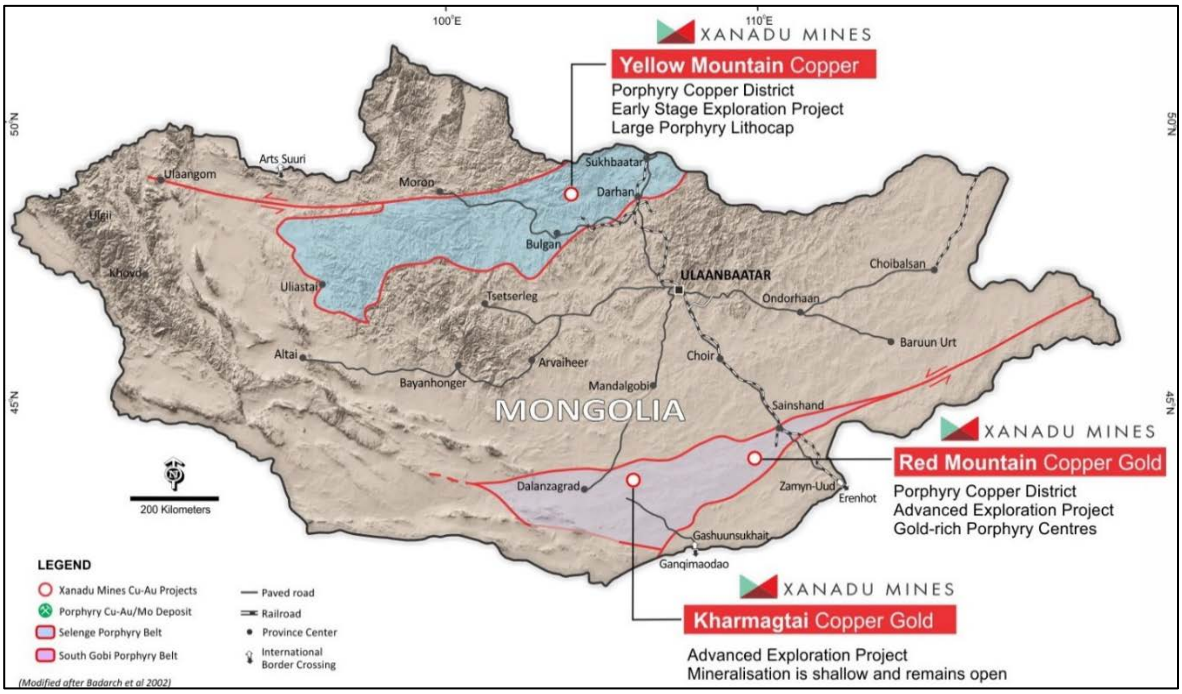

Figure 4-1: Location of Xanadu's Mineral Exploration Projects

Source: Xanadu Annual Report 2018.

4.1 Regional geological and structural setting

Mongolia forms part of the Central Asian Orogenic Belt (CAOB), which extends from the Pacific coast to the Ural Mountains. The CAOB is tectonically complicated, consisting of a series of accreted terranes. These terranes include cratonic blocks, island arcs, accretionary wedges and ophiolite zones (after Badarch, 2002). The belt is surrounded by the Precambrian Siberian Craton in the north and the Tarim and Sino-Korean Cratons in the south.

The Neoproterozoic-Palaeozoic tectonic framework and evolution of the region is characterised by accretion and amalgamation of island arcs and cratonic blocks separated by intervening Palaeo-Asian oceanic basins. In the Neoproterozoic, the Dundzugur island arc was accreted to the Gargan block and intruded by the Sumsunur tonalite pluton (800 million years ago or 'Ma', Kuzmichev et al., 2001). One or more oceanic basins formed in the Late Neoproterozoic.

The 'soft' collision and ophiolite obduction started approximately 540 Ma (Buchan et al., 2002) and the amalgamation of Cambrian island arcs and cratonic blocks, cessation of major regional deformation and metamorphism took place around 450 Ma.

In the Middle Palaeozoic, the South Mongolian island arc was separated from the Siberian continent by a back-arc basin. The arc was amalgamated to the continent in late Palaeozoic. The Mongol-Okhotsk ocean basin existed at least from the Early Carboniferous. The ocean closed progressively eastwards from the Permian to the Jurassic. The left-lateral shear zone (172 Ma) located along the Mongol-Okhotsk suture indicates that the suture in eastern Mongolia formed at least by the mid-Jurassic.

Small Precambrian cratonic blocks in the Hangay region acted as a central nucleus around which Palaeozoic arcs, back-arc and fore-arc basin assemblages and associated subduction complexes and continental slivers were accreted. The temporal and spatial order of accretion and amalgamation was complex and probably not simply from north to south. The timing of terrane accretion is partly constrained by sedimentary overlap assemblages and post-amalgamation intrusive complexes. The main stages of amalgamation occurred during the Neoproterozoic, Cambrian-Ordovician, Devonian, Early Carboniferous-Permian and Triassic. The arcuate trends of terranes around the central Hangay region provide the first-order structural grain for Mongolia. This crustal anisotropy has played a major role in controlling the geometry and kinematics of all subsequent Phanerozoic deformation and reactivation of structures in the region, including the Cainozoic development of the Altai and Gobi Altai regions.

Regionally, Mongolia can be subdivided into two broad domains on the basis of age and tectonic association. The two domains are separated along the Main Mongolian Lineament (Figure 4-2).

The Northern Domain comprises Precambrian-Lower Palaeozoic metamorphic rocks, Neoproterozoic ophiolites and Lower Palaeozoic island arc volcanic sedimentary rocks. Granite plutons of various ages intruded this complex domain, especially in the Middle Gobi Permian volcanic-plutonic belt and Hangay-Hentey zone. Sedimentary cover is mainly Devonian and Carboniferous and consists of mainly marine sedimentary sequences. The Permian volcanic-plutonic Middle Gobi belt is associated with marine and non-marine sediment.

The Southern Domain is dominated by Lower to Middle Palaeozoic arc-related volcanic and volcanoclastic rocks as well as fragments of ophiolite mélanges. Carbonate ‘reef’ limestone and marine sediments on the northern margin of the southern domain are associated with terrigenous and volcaniclastic rocks of Carboniferous (Pennsylvanian) to Permian age.

The eastern part of both domains is intruded by numerous Mesozoic granites with rare metal signatures and overlapped by Upper Jurassic to Cretaceous volcanics and non-marine sedimentary rocks.

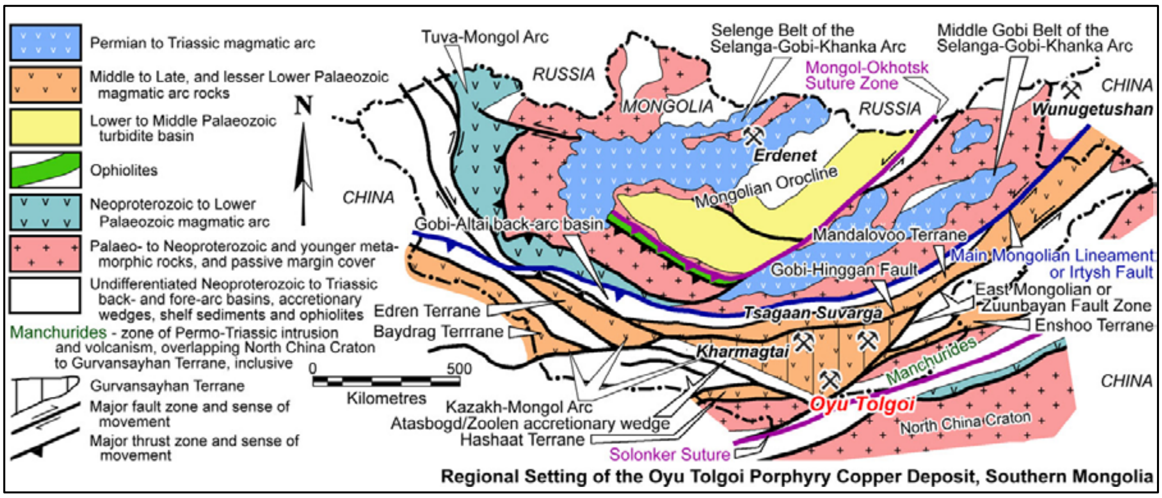

Figure 4-2: Mongolian geological framework

Source: PorterGeo

Within the CAOB, a string of major porphyry copper deposits (e.g. Almalyk or Kal'makyr-Dalnee in Uzbekistan; Bozshakol, Kounrad, Koksai and Aktogai in Kazakhstan, Aksug in Russia, Tuwu and Duobaoshan in China, and Erdenet and Oyu Tolgoi in Mongolia) are hosted by subduction-related magmatic arcs that developed from the late Neoproterozoic, through the early, mid and late Palaeozoic, up to the Jurassic intra-cratonic extension. Deposits are predominantly located on the southern margin of the palaeo-Tethys Ocean, but are also associated with the closure of two rifted back-arc basins behind that ocean facing margin (Porter, 2019).

Although major deposits occur from the Ordovician (e.g. Bozshakol) through to the Triassic (e.g. Erdenet), the most prolific interval of ore formation, including the largest deposits, was during the Late Devonian and Early Carboniferous (Yakubchuk et al., 2002), prior to the amalgamation of Pangea during the late Carboniferous. Major orogenic gold deposits (e.g. the Permian Muruntau in Uzbekistan and Kumtor in Kyrgyzstan) also occur within the CAOB (Porter, 2019).

4.2 Kharmagtai Project

4.2.1 Location and access, climate and physiography

The following summary information relating to the Project is largely provided in the 2019 Scoping Study Report for Kharmagtai by CSA Global (CSA), a Perth based independent consulting company.

The Kharmagtai porphyry copper-gold project is located within the Omnogovi Province of southern Mongolia, approximately 420 km southeast of capital city of Ulaanbaatar (Figure 4-1). The country is bordered by Russia in the north and China in the south.

Road access to the area follows a paved road from Ulaanbaatar requiring six hours of travel time, with the last 1.5 hours on approximately 60 km of unsealed roads. The soum (sub-province) centre of Tsogt Tsetsii is situated approximately 60 km southwest of the Project area and is serviced by daily flights from Ulaanbaatar requiring 45 minutes of travel time.

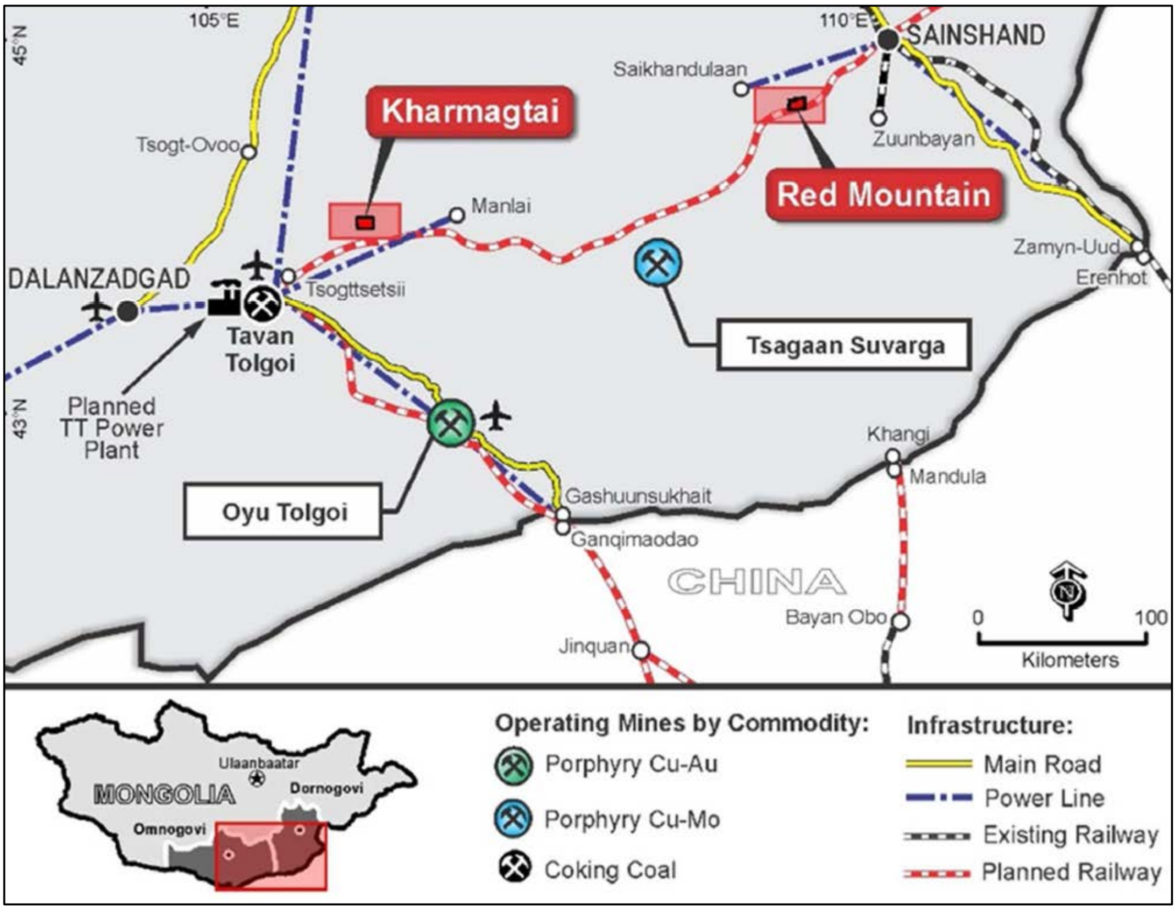

Figure 4-3: Location and access map for the Kharmagtai Project

Source: CSA Global May 2019 – Open Pit Scoping Study.

Climate and physiography

The Project is located within the Gobi Desert, an area classified as a ‘cold desert’ climate. The region generally experiences arid continental climatic conditions, with temperatures varying between +30°C and -30°C and average rainfall around 194 mm. Most rainfall occurs within the summer months from May to September. Due to low humidity and high winds, snow accumulation in winter is limited to isolated drifts, with generally very shallow snow cover away from these drifts, allowing for exploration activities to continue year-round.

Topography in the licence area is subdued and characterised by flat, gravel-covered plains and low undulating hills which range in elevation from 1,360 m to 1,250 m above sea level. Vegetation is sparse with low shrubs and grassy plains.

4.2.2 Project tenure

The Project tenure is secured through a granted mining licence held by Oyut Ulaan LLC (Oyut Ulaan). Xanadu’s interest is secured through a 90% interest in the joint venture company, Mongol Metals LLC, which in turn holds a 90% in Oyut Ulan, thereby entitling Xanadu to a 76.5% participating and controlling interest in the Kharmagtai Project. The remaining 10% interest in Oyut Ulan is held by a private company, QGX, which is registered in Canada.

SRK notes that it is not qualified to make legal representations as to the ownership and legal standing of the tenements that are the subject of this valuation. SRK has not attempted to confirm the legal status of the tenements with respect to joint venture agreements, local heritage or potential environmental or land access restrictions.

SRK has been provided with legal documentation obtained by Xanadu from Minter Ellison LLP, an independent legal firm. The document, Mongolian Legal Opinion, dated 16 July 2018, was prepared by ME MGL Advocates LLP, a firm of Mongolian Qualified Lawyers, who provide Mongolian law services exclusively to Minter Ellison. The document comments on Xanadu’s legal rights to the Kharmagtai, Yellow Mountain and Red Mountain mineral licences. Only the Kharmagtai Project (MV-017387) is the subject of this Report. Details of the Kharmagtai mining licence are provided in Table 4-1.

SRK acknowledges that this legal report is over one year old. SRK has been informed by Xanadu that there have been no changes in tenure and the information contained in the report remains current and accurate.

Table 4-1: Kharmagtai Project – tenure status

Project Name	Licence No.	Sub-status	Company Holder	Percentage Held	Expiry Date	Area (ha)	Area (km²)
Kharmagtai	MV-017387	Granted	Oyut Ulaan LLC	100%	27/09/2043	6647.05	66.5

Source: Minter Ellison, July 2018.

4.2.3 Rights, obligations, royalties and agreements

SRK is advised that the Project is subject to all normal Mongolian regulatory rights and obligations, including any associated state royalties and taxes. Mongolia imposes a 5% royalty on all minerals other than coal that are sold, shipped for sale or used. In addition, an incremental surtax royalty is imposed on the total sales value of 23 minerals, with the amount varying depending on the mineral, its market price and the degree of processing.

SRK is not aware of any third-party royalties or payment obligations. To date, Xanadu has not negotiated any reduction in Mongolian state royalties at the Kharmagtai Project.

4.2.4 Supporting resources and infrastructure

A semi-permanent exploration camp has been established and is located immediately outside of the southwest corner of the mining licence. The exploration camp comprises semi-permanent modified sea containers and includes core processing, offices, messing and accommodation facilities.

Two major third-party owned mining projects are situated within 150 km of the Project: Erdenes-Tavantolgoi JSC's Tavan Tolgoi coking/ thermal coal mine (65 km southwest) and Turquoise Hill Resources Ltd's Oyu Tolgoi copper-gold mine (125 km south–southeast).

A high-voltage powerline running east–northeast to west–southwest connecting the soum (sub-province) centre of Tsogt Tetsii and Manlai runs less than 20 km from Xanadu's Kharmagtai licence at its closest point.

A proposed 450 MW coal-fired power station at Tavan Tolgoi near Tsogt Tetsii and located approximately 60 km southwest of Kharmagtai is also in development. This project is intended to supply power to the Oyu Tolgoi mine, with construction expected to take four years (completion expected in 2020). Construction has also recently been completed on a 50 MW wind farm located at Tsogt Tetsii (CSA Global, 2019).

A proposed railway line is planned, which would connect Tsogt Tetsii with Sainshand, and pass approximately 30 km south of Xanadu's Kharmagtai Project.

Surface water is scarce in the Kharmagtai area, comprising ephemeral water sources that are only full during the rainy season. A water exploration study completed between 2009 and 2012 identified a wellfield in the Zag watershed, located 15 km from the Project area, as the most likely water source.

4.2.5 Project geology

The following section is sourced from the Mineral Resource Estimate report prepared by CSA Global in 2018.

Outcrop throughout the Kharmagtai district is sparse, with Quaternary sand locally averaging 35 m and up to 85 m, thus forming a thin cover layer over most of the district. These cover sediments comprise basal conglomerate overlain by red-brown clays of probable Cretaceous age, with an upper layer of Quaternary colluvium (sand, gravel and clay).

The current geological understanding of the Kharmagtai region is derived mainly from diamond drilling, supported by geological mapping of localised outcrop and trenches.

Copper-gold mineralisation at Kharmagtai is hosted within the Lower Carboniferous Kharmagtai Igneous Complex (KIC), which was emplaced into a Late Devonian volcano-sedimentary sequence (Kharmagtai Volcanic Group). The Kharmagtai Volcanic Group has a minimum stratigraphic thickness of 1,500 m and dominates the western part of the district. The true thickness of the succession is poorly constrained, due to structural and alteration complexities. The volcanic group predominantly comprises hornblende-phyric andesite interbedded with poorly sorted breccia and finely laminated volcaniclastic units (CSA, 2018).

The KIC is characterised by a composite porphyritic diorite to quartz diorite intrusive complex characterised by a high-potassium calc-alkaline island arc geochemical signature (Jargalan et al., 2006). The complex covers approximately 5–6 km^2, extending from White Hill in the west, to Wolf prospect in the east (Figure 4-4). The intrusive complex is predominately composed of diorite, quartz-diorite and monzodiorite intrusions, with granodiorite and syenite on its eastern margin. Intrusions appear to become more evolved the further east they are in the igneous complex. Early-mineral intrusions are typically equigranular stocks, or weakly mineralised dark-grey to black diorite, which have been cut by a series of quartz diorite porphyry pipes and dykes of early- and intermineralisation timing. The dimensions of the composite mineralised pipes at Kharmagtai are around 100–200 m in diameter, with vertical extents up 1 km such as at Stockwork Hill.

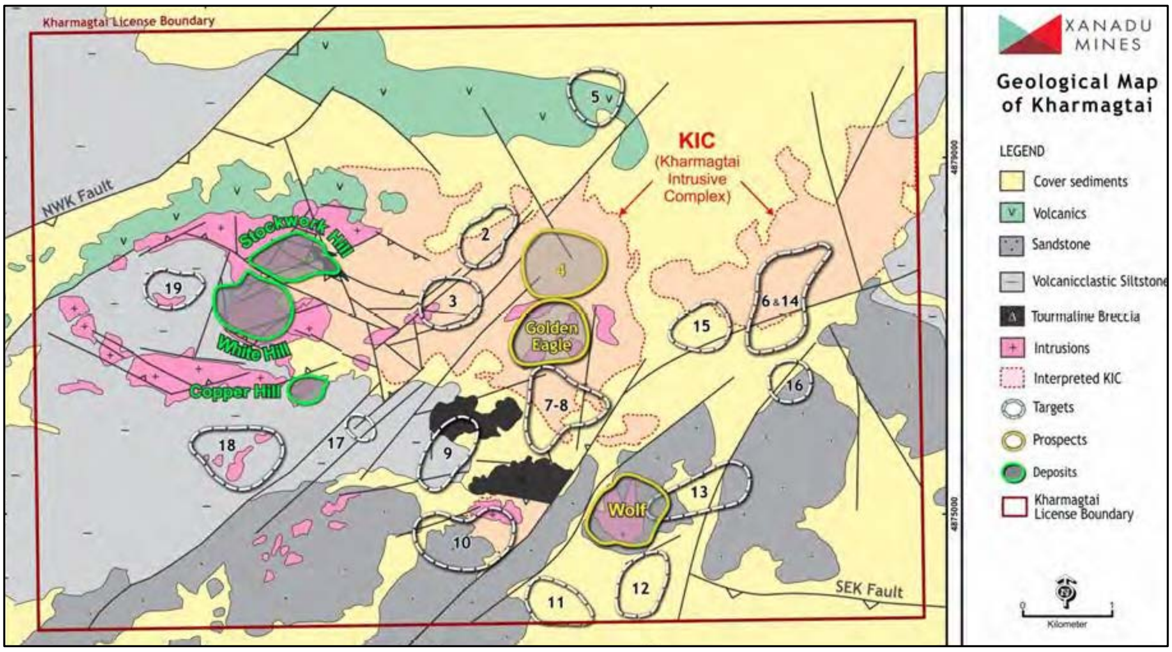

Figure 4-4: Geological map of Kharmagtai mining licence area

Source: CSA, 2018.

Note: Solid geology interpretation of lithologies and major structures derived from limited outcrop exposure, drill holes, and interpretation of geophysical datasets.

"KHARMAGTAI PROJECT" - SCHEMATIC STRATIGRAPHIC

LATE

Volcaniclastic conglomerate:
Formation name:Dushiin Ovoo, Code: VCL, Age: Lower Carboniferous to lower Permian
KHDDH463 @267.70, Stockwork Hill: A coarse clastic conglomerate, composed of abundant closely-packed subrounded lithic fragments (mainly andesites, some dacites) and minor crystal fragments (plagioclase, hornblende) in minor fine matrix derived from the same rocks.

Amygdaiodal Basalt:
Code: BAS, Age: none
KHDDH017 @140m, Copper Hill: Fine plagioclase and pyroxene phenocrysts in dark grey, aphanitic groundmass. Amygdales display a flow orientation. Amygdales of carbonate+chlorite. Unaltered and unmineralised.

Trachyandesite:
Code: TAND, Age: 308.8±2.6 (Munkhbat 2016)
KHDDH424 @642.9m, Stockwork Hill: 20-30% medium to large plagioclase phenocrysts 5 to 15mm and 10-20% amphibole, pyroxene phenocrysts in dark grey, aphanitic groundmass.

Porphyritic Andesite:
Code: ANDP, Age: none
KHPCD130 @59.65m, Basin: A porphyritic variant of Andesite. Coarse, embayed plagioclase and medium hornblende with a dark grey to black, aphanitic groundmass. May display crosscutting tourmaline brecciation and albitisation.

Post Mineral Sill:
Code: PMS/P5 Complex name: none , Age: 314.8±2.7Ma (Matbrown 2017)
KHDDH275 @523.0m Stockwork Hill: Crowded texture. Approximately 60% plagioclase with partially resorbed rims. Groundmass predominately of fine hornblendes. Where intersected typically shows albite+epidote alteration of the plagioclase with weak to moderate hematite dusting, hornblendes are chloritized. White mica+quartz+pyrite alteration proximal to structures. No quartz veining. Unmineralized.

Diorite-Phase 4:
Code: DIO, Complex name: Mandakh complex, Age: none
KHDDH372 @314.2m Stockwork Hill: Fine diorite. Hornblendes typically piokilitic with inclusions of plagioclase. Rare books of primary biotite. Dark grey aphanitic groundmass. Hornblendes fresh with rarely only very weak chlorite alteration. Phenocrysts typically displays flow lamination. No porphyry style veining and only very weak alteration as disseminated sulphide.

Diorite:
Code: PB, Complex name: Mandakh complex, Age: none
KHDDH437 @782.3, White Hill: Fine, equigranular diorite, Igneous texture well preserved. Originally 15% of well crystaled white plagioclase phenocrysts to 0.3-1mm and 20% dark green hornblende, bioite phenocrysts in a black aphanitic 60% groundmass. Intense to strong magnetite-biotite alteration. Sheeted B and M type porphyry veining and moderate mineralized.

Diorite-Phase 3:
Code: P3, Complex name: Mandakh complex, Age: none
KHDDH467 @1053.6m, Zaraa: Fine, equigranular diorite. Igneous texture well preserved. Originally 40% of blocky white plagioclase phenocrysts and 30% dark green hornblende phenocrysts. Hornblende sites displays only very weak secondary biotite alteration with biotite frequently overprinted with chlorite and plagioclase sites displays weak white sericite alteration. Rare B-type veining. Weakly mineralized.

Diorite-Phase 2:
Code: P2, Complex name: Mandakh complex, Age: 318.8±7.6Ma (Enkhjargal 2016)
KHDDH419 @666.5m, Stockwork Hill: Medium, equigranular to weakly porphyritic diorite. Igneous texture moderately to well preserved and originally texture where 55% of the rock are phenocrysts (0.7-2.0mm) of plagioclase and hornblende. Sheeted B and M type porphyry veining. Hornblende sites typically show strong secondary biotite alteration with hornblende phenocryst shape preserved. Secondary magnetite frequently in groundmass and as selvadge to veining. Biotite typically displays chlorite+sericite overprint and plagioclase sites strongly overprinted by muscovite. P2 truncates veining of P1 where in contact.

Diorite-Phase 1:
Code: P1, Complex name: Mandakh complex, Age: 316.6±3.3Ma (Matbrown 2017)
KHDDH394A @480.5m, Stockwork Hill: Medium, equigranular to weakly porphyritic diorite. Originally composed of moderately abundant approximately 55% phenocrysts (hornblende-plagioclase-amphibole) in a fine-grained groundmass. Partial to strong detraction of the primary igneous texture due to early potassic alteration. Crosscut by stockwork A+B type porphyry veins. Hornblende sites typically show strong to intense secondary biotite alteration with shreddy texture. Biotite typically displays chlorite+sericite overprint and plagioclase sites strongly to intense overprinted by muscovite.

Diorite porphyry:
Code:CRP, Complex name: Mandakh complex, Age: 324±2.0Ma (Matbrown 2017)
KHDDH345 @34.25m, White Hill: Porphyritic diorite. Rounded, embayed plagioclase phenocrysts to 2mm with resorbed rims in a grey aphanitic 60% groundmass. Rare fresh hornblende phenocrysts. Main host to mineralization at White Hill.

Diorite:
Code:CRD, Complex name: Mandakh complex, Age: 329.8±1.8Ma (Doug Kirwin 2006)
KHDDH248 @160.0m, Stockwork Hill: Grey, equigranular fine to medium grained diorite. Strong to intense altered near to porphyry center. Main host intrusive rock of Zaraa and Golden Eagle. Fine to medium grained (0.5-1.1mm) phenocrysts of anhedral to subhedral plagioclase and hornblende make up up to 70% of the rock.
Slab is showing well contact of fine diorite and diorite porphyry.

Sandstone:
Code: SST, Formation name: Ikh Shankh, Age: Lower Carboniferous
KHDDH482 @130.40, Wolf: Grey brown to grey green fine grained sediments. Poorly sorted and weakly to moderately hornfelsed near contact with intrusives. Rarely crosscutting A+B and M veins and strong to moderate secondary magnetite alteration.

Siltstone:
Code: SLT, Formation name: Uguumur, Age: Upper Devonian
KHDDH383 @174.7m, Copper Hill: Silty to fine grained sediments. Massive with rare planar bedding. Strongly hornfelsed near contract with intrusive. Strong to intense secondary biotite+magnetite giving a dark brown to black color. Crosscutting porphyry A+B and M veining in proximity to mineralizing phase porphyries. Distinct bleaching as selvadge to D veins due to sericite+chlorite alteration. Rarely shows albite alteration, possibly replacing earlier potassic K-feldspar alteration.

EARLY

Figure 4-5: Igneous paragenesis of the Kharmagtai Project and standardised logging and rock type identification

4.2.6 Project structure

All the units within the Kharmagtai region have been disrupted by extensive northeast-trending shear zones that appear to have been reactivated as normal faults during later basin and range extension, juxtaposing deeper equigranular plutons with shallower, locally argillic-altered volcanic units (Figure 4-6). Porphyry mineralisation at Kharmagtai has been emplaced along west–northwest-trending structures along the margins of the KIC. These controlling structures have been reactivated as dextral shear zones post mineralisation, disrupting the deposits (CSA, 2018).

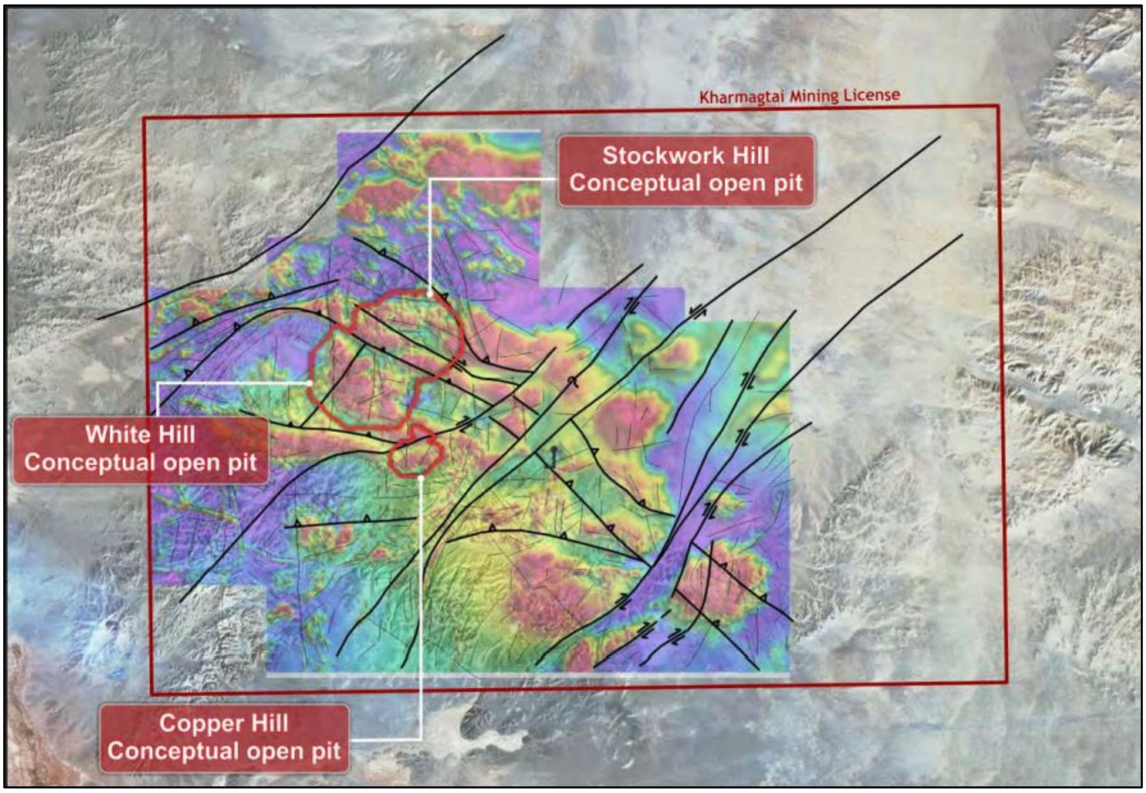

Figure 4-6: Structural map of the Kharmagtai Project over regional magnetic geophysical imagery

Source: CSA, 2018.

4.2.7 Deposit type

Porphyry deposits are formed from magmatic hydrothermal fluids originating from intrusive stocks; a typical schematic example of the mineralisation model is provided in Figure 4-7. Mineralisation occurs in both the intrusive stocks and the surrounding host rocks, with porphyry deposits typically associated with felsic to intermediate intrusive rocks. Mineralisation typically occurs as quartz stockworks with associated veining or broadly disseminated.

Typical alteration patterns consist of potassic altered cores grading outward to propylitic altered margins and grading upward to overprinted phyllic alteration (CSA, 2018). Porphyry deposits are large; the mineralised cores may reach hundreds of metres in scale, with broader alteration haloes at the kilometre scale.

Due to their large volume, porphyry deposits can be economic at low elemental concentrations. Typically, the primary commodity is copper, with by-products such as molybdenum, silver and gold. Porphyry deposits are typically mined using large-scale open pit or underground bulk mining methods.

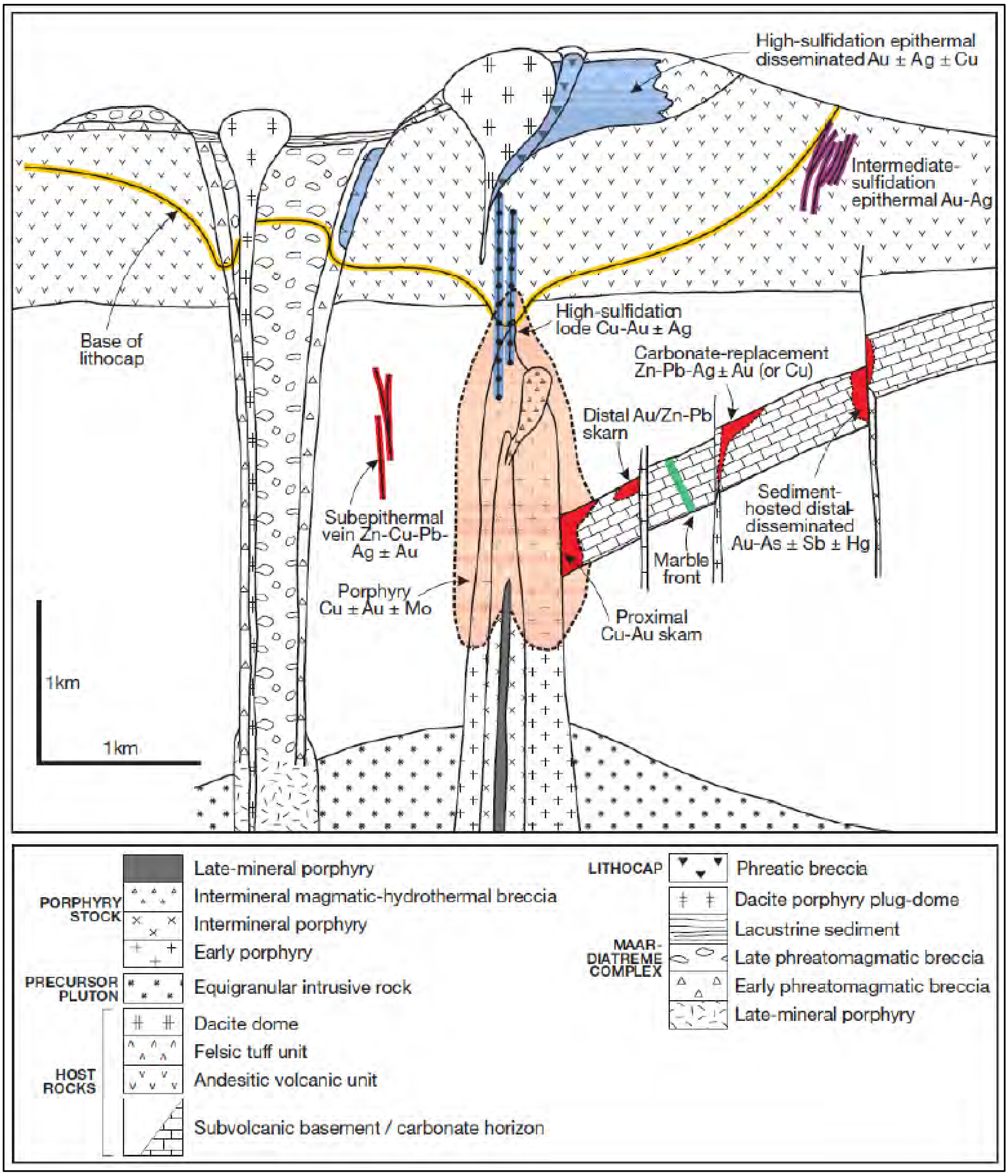

Figure 4-7: Schematic anatomy of a telescoped porphyry copper mineralisation system

Source: Sillitoe, 2010.

Porphyry mineralisation at Kharmagtai is somewhat atypical, in that it is associated with intermediate intrusions of diorite to quartz diorite composition, and the alteration assemblages are largely discontinuous, non-symmetrical, and not all alteration domains are observed in every deposit (CSA, 2018).

4.2.8 Mineralisation

The following sections are sourced from the Mineral Resource Estimate report prepared by CSA in 2018.

Mineralisation at Kharmagtai is directly related to typical porphyry-style vein and hydrothermal breccia assemblages. These assemblages demonstrate both spatial zonation and temporal overprinting relationships commonly associated with porphyry copper-gold systems. Kharmagtai is part of a large porphyry system, with multiple overprinting phases of intrusions and mineralisation.

There is a strong structural control to the known mineralisation, particularly at Stockwork Hill and Copper Hill. Most of the higher grades occur within local cross-cutting structures and at the margins of quartz diorite porphyries (breccia), with broad low-grade mineralisation typically draping the top of intrusive bodies.

The top of deeper copper-rich tourmaline breccia mineralisation is typically intersected in drill holes at depths of more than 200 m below surface. Recent drilling by Xanadu has shown the tourmaline breccia to be quite extensive at depth. Tourmaline-bearing breccia pipes, both mineralised and barren, are also commonly associated with the Andean porphyry copper deposits of South America.

Five broad styles of mineralisation occur within the Kharmagtai area, which, due to their metal ratios, spatial distribution and structural setting, are interpreted to be due to separate mineralising events. The first two mineralisation styles are of most immediate economic interest:

- Large zones with complex geometries associated with typical porphyry-style quartz veins and moderate grades of copper and gold, such as White Hill and the northern part of Stockwork Hill. The gold to copper ratio is this style of mineralisation is about 1: 1 (Au ppm: Cu%).
- Steeply dipping, structurally controlled breccia zones with high grades of gold and copper (in that order), examples being Stockwork Hill South and Copper Hill. Gold to copper ratio of 2: 1 or higher.
- Tourmaline breccia zones seen at depth in White Hill and in the eastern part of Stockwork Hill. Where mineralised, breccias are characterised by gold to copper ratios of 1: 2.
- Zones of late carbonate base metal veining associated with northwest-trending structures. Zones range from 10 cm to 5 m wide and can contain gold grades from 1 g/t to 119 g/t.
- Epithermal gold veins have been encountered regularly at Kharmagtai while drilling for porphyry mineralisation. These veins take the form of carbonate base metal veins or breccias, where free gold is disseminated throughout a gangue of dolomite, calcite, chalcopyrite, galena and sphalerite. Veins range from 30 cm to 5m in width, with grades between 1 g/t Au and 200 g/t Au and can extend for kilometres, as they are hosted within large-scale contiguous faults crossing the Kharmagtai mining licence area.

Veining

The following veins and vein styles have been identified at Kharmagtai with examples shown in Figure 4-6:

- **M veins** – early quartz-chalcopyrite-pyrite-magnetite (M) veins (commonly laminated and/or sheeted)
- **A-veins** – rare, early irregular sugary-textured quartz-sulphide veins with disseminated chalcopyrite-bornite
- **B-veins** – predominant quartz-chalcopyrite veins with prominent sulphide centrelines and regular vein margins which are observed as both sheeted vein arrays and stockworks

- **C-veins** – late, sulphide-only, C-veins commonly comprising massive chalcopyrite (± pyrite and/ or bornite) that typically overprint all quartz-sulphide veins and either predate or are synchronous with mineralised hydrothermal breccias.

The vein systems manifest as both sheeted vein arrays and stockwork zones, demonstrating clear structural and temporal controls on vein domain morphology. A subsequent late stage of sulphide-only C-veins (chalcopyrite ± pyrite ± bornite) overprint the quartz-sulphide vein assemblages and is commonly associated with higher copper-gold grades. Visual overprinting relationships indicate that these sulphide-only C-veins both predate, and are locally synchronous with, the late-stage tourmaline and sulphide-rich hydrothermal breccias. At the deposit scale, sulphide mineralisation is zoned from a bornite-rich core outward to chalcopyrite-rich and then outer pyritic haloes, with gold grades closely associated with chalcopyrite and bornite abundance.

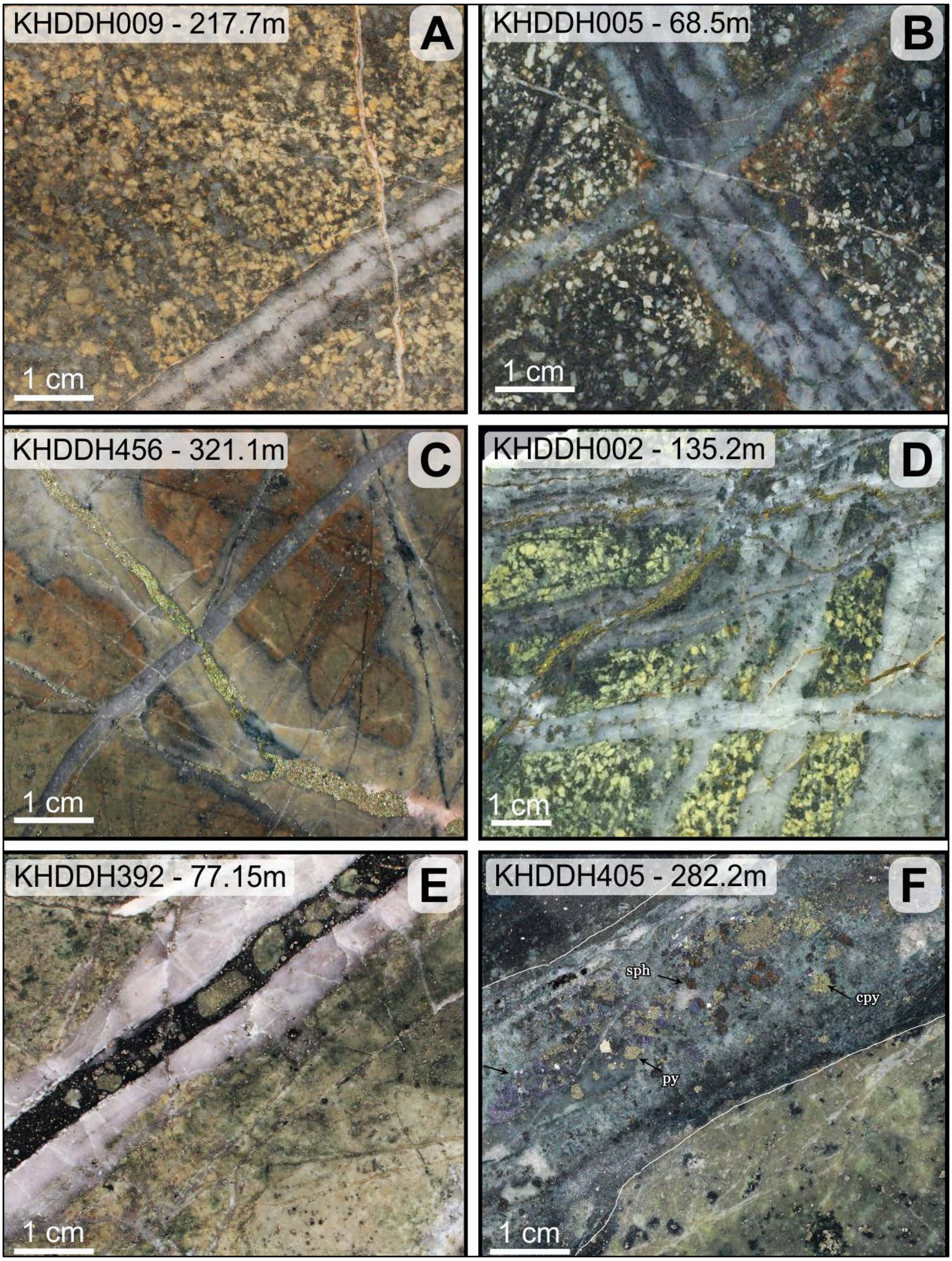

Figure 4-8: Vein paragenesis for the Kharmagtai Project

Source: Unpublished internal report, Xanadu, 2019.

Notes: (A) Unidirectional solidification textures being overprinted by centreline B-vein, being overprinted by a carbonate vein; (B) Magnetite vein being overprinted by laminated B-vein, being overprinted by centreline B-vein; (C) D-veins being overprinted by anhydrite veins;
(D) centreline B-vein stockwork being overprinted by C-veins; (E) Tourmaline breccia vein overprinting D-veins; (F) Carbonate base metal vein, not overprinting anything.

4.2.9 Alteration

Alteration at Kharmagtai does not present with the classic porphyry-style alteration (e.g. potassic cores with phyllic haloes surrounded by a propylitic zone) that is normally expected. At Kharmagtai, alteration is somewhat discontinuous, non-symmetrical, and not all alteration styles occur in every deposit. This is considered a result of multiple intrusive and mineralisation phases and extensive overprinting, which is further complicated by later, fault-controlled sericitic assemblages.

The common alteration assemblages at Kharmagtai are described as follows.

The earliest alteration assemblage recognised in the core of the porphyry deposits of Kharmagtai are sodic (albite), potassic (K-feldspar-biotite-magnetite) and propylitic (epidote-chlorite-magnetite alteration).

- At the Stockwork Hill deposit, early albite-magnetite alteration occurs within the margins of quartz diorite dykes and is locally associated with a very high gold grade quartz-bornite-chalcopyrite vein stockwork containing common native gold. Early albite-magnetite-alteration is followed by selective and patchy strong epidote-chlorite-magnetite alteration related to emplacement of the main high gold grade quartz-chalcopyrite-pyrite-magnetite vein stockwork mineralisation.
- At Copper Hill, early sodic alteration is characterised by albitisation of plagioclase and is overprinted by high intensity K-feldspar variant of the potassic alteration, which destroys all primary textures. Composition and textures of country rocks affected the spatial extents, intensities and style of alteration assemblages that developed around the porphyry complex at Stockwork Hill. The early epidote-chlorite-magnetite has the greatest volumetric extent of all alteration assemblages.

Early potassic and inner propylitic assemblages were overprinted by a sericite-pyrite ± tourmaline alteration assemblage. This phyllic zone is characterised by pervasive sericite-tourmaline-chlorite-yellow epidote alteration, tourmaline-sericite-carbonate-pyrite breccias, and quartz-pyrite-tourmaline-carbonate veins. Discontinuous 1–15 m wide zones of pervasive sericite alteration are typically associated with carbonate-quartz-sericite-pyrite-tourmaline infilled fault zones. Extensive fault- and fracture-related phyllic alteration is typically unmineralised; however, rare 2–10 m wide zones of 0.5% Cu to >5% Cu and <0.01 g/t Au to 0.3 g/t Au are associated with chalcopyrite-bearing tourmaline breccias and carbonate-filled fault zones.

The complex overprinting alteration zonation and veining relationships observed in the Kharmagtai drill core are consistent with those expected in a porphyry mineral system cluster, where multiple porphyry intrusive stocks intrude at different stratigraphic levels over time. This porphyry mineral system ‘telescoping’ process is well documented (Sillitoe, 2010) and typically results in multiple closely spaced, to potentially overlapping, porphyry intrusive centres, each with multiple porphyritic intrusive phases with their own alteration zonation halos (both mineralised and barren) overprinting each other in an often-complex temporal sequence and spatial distribution.

4.2.10 History

The exploration history at Kharmagtai is summarised in Table 4-2. A more detailed summary can be found in the CSA’s Mineral Resource Estimate Report.

Table 4-2: Kharmagtai Project history

Period	Description of work	References
1960–1975	Joint Mongolian Eastern Block Exploration • Regional geological mapping, geochemistry, ground magnetics, IP (chargeability and resistivity) and airborne magnetic/ radiometric surveys • Diamond drill 17 vertical drill holes • Historical Russian standard resource estimate of 193 Mt at a grade of 0.25% Cu*	Goldenberg et al., 1978 Shabalovski et al., 1976 Shabalovski et al., 1978 Sharkhuu, 1980 Shmelyov et al., 1983
1991–1995	JICA and MMAJ • Regional reconnaissance, airborne magnetic and radiometric surveys • Kharmagtai re-identified as an area of porphyry-related alteration and mineralisation	JICA, 1995
1996–1998	QGX (Quincunx) • Regional geological mapping, geochemistry (1,500 rock-chip and 4,000 soil samples), trenching (19 km), geophysics (240 km) • Diamond drilling of five shallow holes (1,060 m) – sediment-hosted gold mineralisation at Ovoot Khyar discovered • Diamond drilling of 19 shallow, widely spaced holes – defined widespread porphyry alteration and mineralisation at Kharmagtai	Atkinson, 1997 Atkinson, 1998 Atkinson & Setterfield, 1998 Atkinson et al., 1998a Atkinson et al., 1998b Roscoe & MacCormack, 1997
2001–2006	IMMI • Detailed geological mapping, geochemistry (2,960 rock-chip), 119 trenches (66 km) – geophysics included gradient array IP (289 km^2), ground magnetics (589 km^2), ground gravity (39 km^2) and aerial magnetics and aerial gravity • Drilled 208 RC (27,747 m) and 172 diamond drill holes (54,269 m) – drilling focused on testing and defining the Stockwork Hill, Copper Hill, White Hill, Chun, Burged and OV3 prospects • Historical combined resource at Stockwork Hill, Copper Hill and White Hill of 174 Mt at 0.50% CuEq*	Kirwin, 1997 Kirwin et al., 2003 Wolfe, 2004 Wolfe & Wilson, 2004 Wolfe R, 2006a Wolfe R, 2006b Wolfe R, 2007
2007–2012	Asia Gold (AGC, a subsidiary of IMMI) • Deep diamond drilling (5,170.60 m) testing deeply seated geophysical anomalies • A detailed 3D IP survey was completed was completed in 2011 and 19 diamond holes (15,345.30 m) were drilled.	Orssich C, 2012

Source: CSA, 2018.

4.2.11 Exploration by Xanadu up to September 2018

Since acquiring the Project in 2014, and up until the CSA's Mineral Resource estimate dated 1 October 2018, Xanadu has completed the following exploration activities as summarised below:

- Geophysical surveying:
  - 1,200 line-kilometres of ground magnetic survey to infill previous surveys
  - Acquisition of 2,225 ground gravity stations at a nominal 100 m spacing
  - Reprocessing of historical datasets and new data (Figure 4-11)
- Trenching: Completion of 17 new trenches for a total of 5,618 m
- Drilling: Xanadu's exploration drilling for a total of 118,573 m is summarised in Table 4-3, with the drill hole locations provided in Figure 4-10.

Table 4-3: Kharmagtai drilling up until October 2018

Company	Drilling Method	Number of Drill holes	Metres Drilled
Xanadu	DDH	151	71,553.67
	RC	73	14,220.70
	RCDDH	24	6,662.85
	RPD	664	26,136.60
		Total metres	**118,573.82**

Source: Xanadu Annual Report, 2018

Notes:

DDH – diamond drill hole

RC – reverse circulation drill hole

RCDDH – combination of RC and diamond drilling

RPD – rotary percussion drilling.

- Geochemistry: Sampling of basement rocks on a 250 m by 250 m (or 125 m by 125 m as required) grid was undertaken by Xanadu in 2016 using rotary percussion drilling (RPD) in areas covered by shallow cover sediments. Samples were submitted for four-acid digest with inductively coupled plasma mass spectrometry (ICP-MS) analysis for 61 elements plus major elements via X-ray diffraction (XRD) and gold by Fire Assay
- Regional target ranking exercises integrating new data with historical data were undertaken and used to defined and prioritise targets for further exploration.

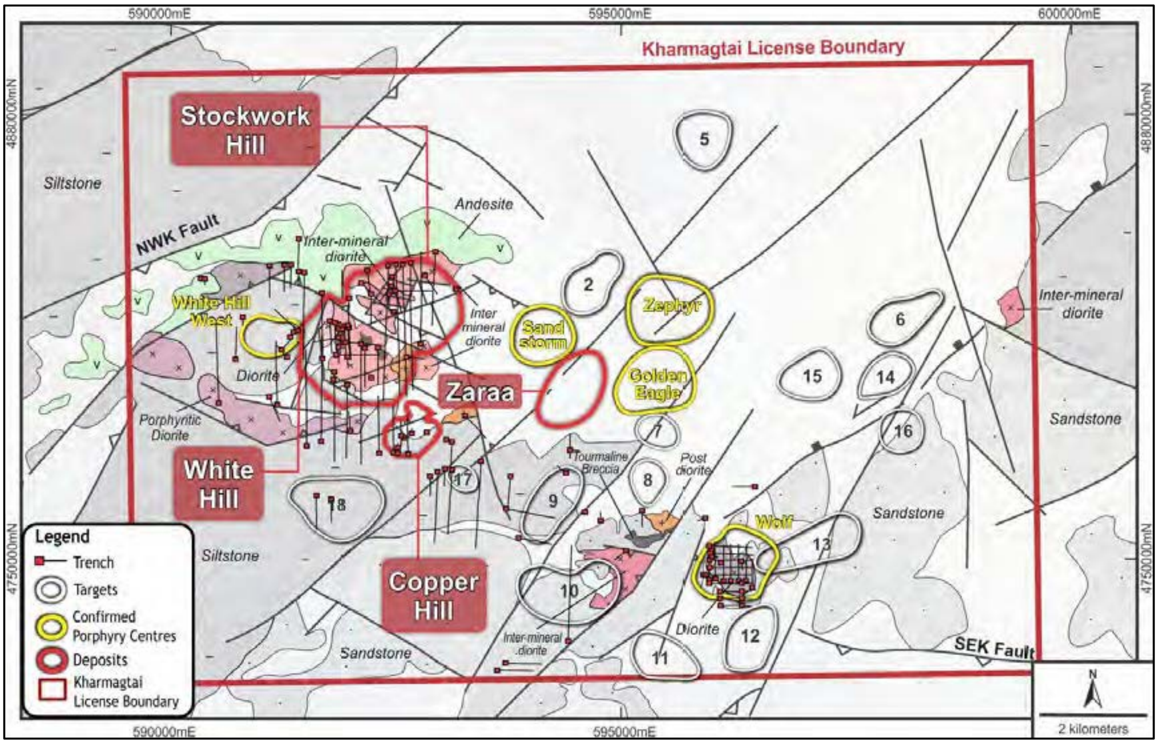

Figure 4-9: Trenching location map

Source: Xanadu Annual Report, 2018.

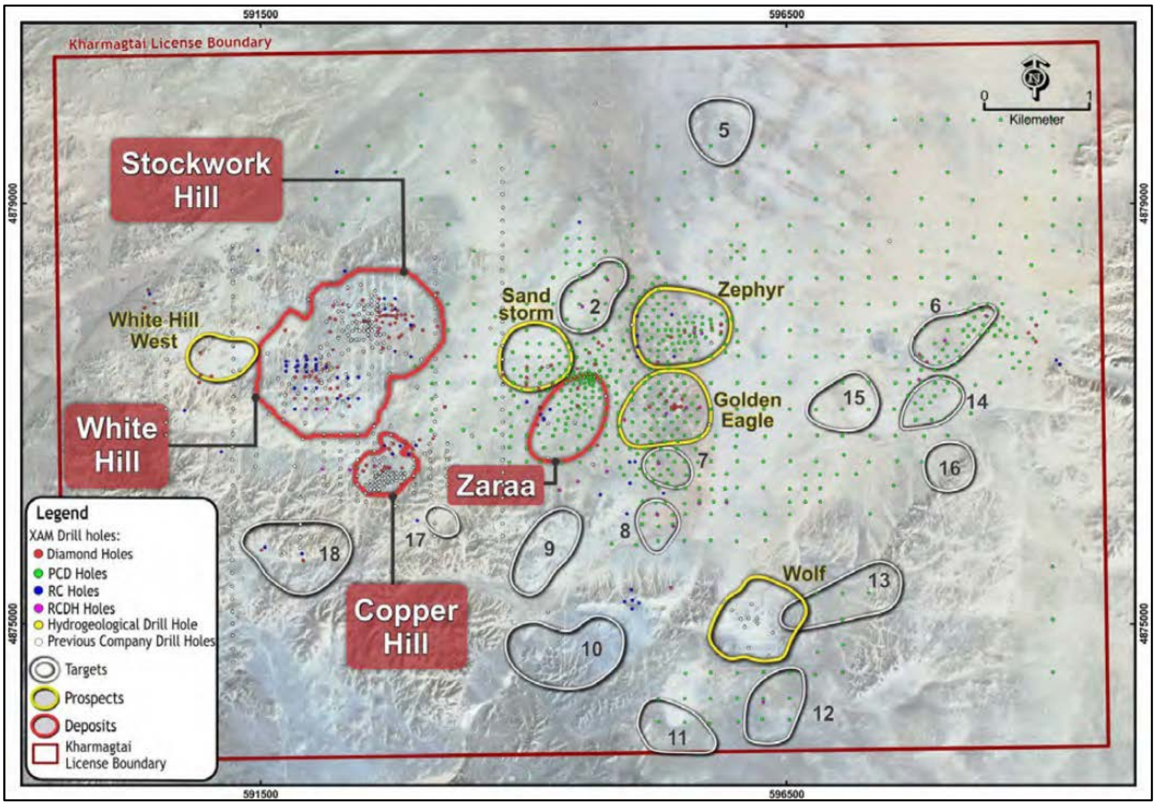

Figure 4-10: Drill hole location map up to September 2018

Source: Xanadu Annual Report, 2018.

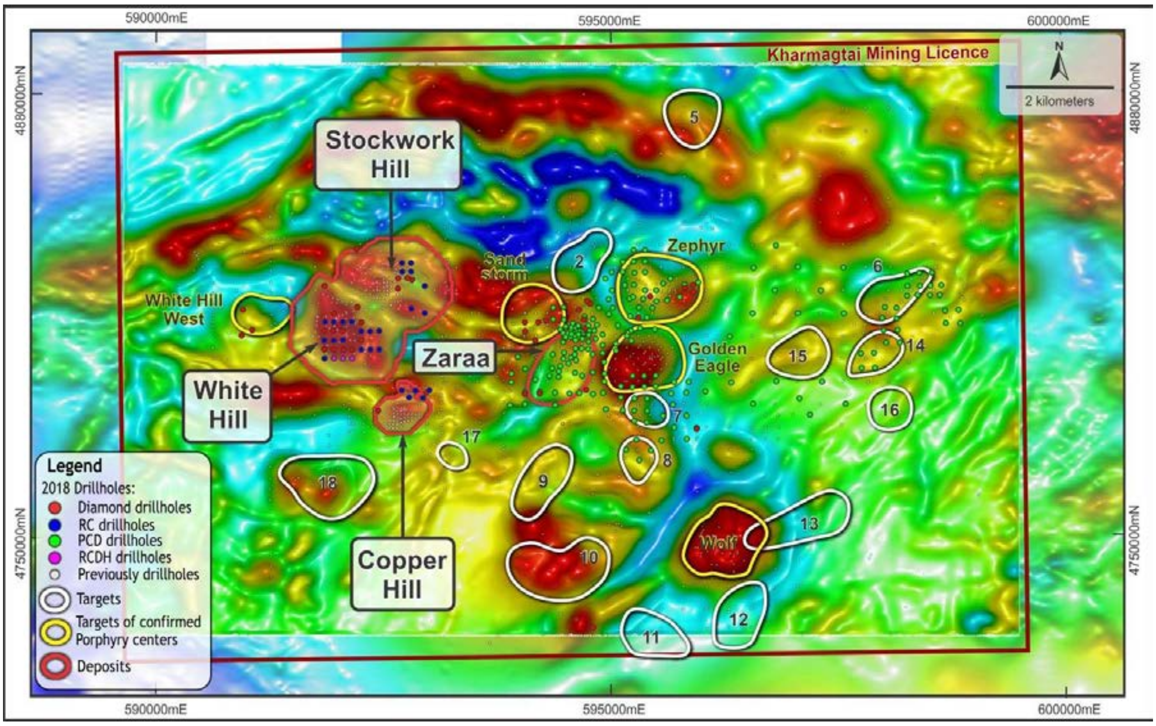

Figure 4-11: Geophysical image (ground magnetics), drilling, prospect and target location map

Source: Xanadu Annual Report, 2018.

4.2.12 Exploration by Xanadu since the previous Mineral Resource update

SRK understands that since the CSA's Resource estimate in 2018, Xanadu has drilled an additional 50 holes for a total of 8993.5 m consisting of holes, KH481–KH523 and KHRC329–KHRC342. More information is given in Table 4-4 and the hole locations are provided in Figure 4-12. These additional drill holes, combined with the improved understanding of the Project since 2018, have been used to support and estimate the revised Exploration Targets as discussed in Section 4.5.

Table 4-4: Kharmagtai Project drilling since September 2018

Hole ID	Prospect	Type	Depth (m)
KHDDH481	Zaraa	DDH	150.8
KHDDH482	Wolf	DDH	197.4
KHDDH483	Basin	DDH	150.8
KHDDH484	Wolf	DDH	135.8
KHDDH485	White Hill	DDH	291
KHDDH486	White Hill	DDH	351.8
KHDDH487	Stockwork Hill	DDH	350.8
KHDDH488	Stockwork Hill	DDH	1214.4
KHDDH488A	Stockwork Hill	DDH	598.8
KHDDH488B	Stockwork Hill	DDH	463.7
KHDDH489	White Hill	DDH	1338.8
KHDDH490		DDH	40
KHDDH491		DDH	40
KHDDH492		DDH	50
KHDDH493		DDH	40.5
KHDDH494		DDH	40
KHDDH495		DDH	40
KHDDH496		DDH	60
KHDDH497		DDH	40
KHDDH498		DDH	40
KHDDH499		DDH	40
KHDDH500		DDH	70.5
KHDDH501		DDH	40
KHDDH502		DDH	33.4
KHDDH503		DDH	45.9
KHDDH504		DDH	41.3
KHDDH505		DDH	44.4
KHDDH506		DDH	50
KHDDH507		DDH	38
KHDDH508		DDH	44.7
KHDDH509		DDH	33.5
KHDDH510		DDH	41
KHDDH511		DDH	69
KHDDH512		DDH	67

Hole ID	Prospect	Type	Depth (m)
KHDDH513		DDH	80
KHDDH514		DDH	72.4
KHDDH515		DDH	61
KHDDH516		DDH	63
KHDDH517		DDH	60
KHDDH518		DDH	65
KHDDH519		DDH	65
KHDDH520		DDH	70
KHDDH521		DDH	90
KHDDH522		DDH	65
KHRC329		RCDDH	550
KHRC332		RCDDH	549.8
KHRC339		RC	301
KHRC340		RC	244
KHRC341		RC	213
KHRC342		RC	151
		Total	**8993.5**

Notes:
DDH – diamond drill hole
RCDDH – combination of RC and diamond drilling
RC – reverse circulation drill hole

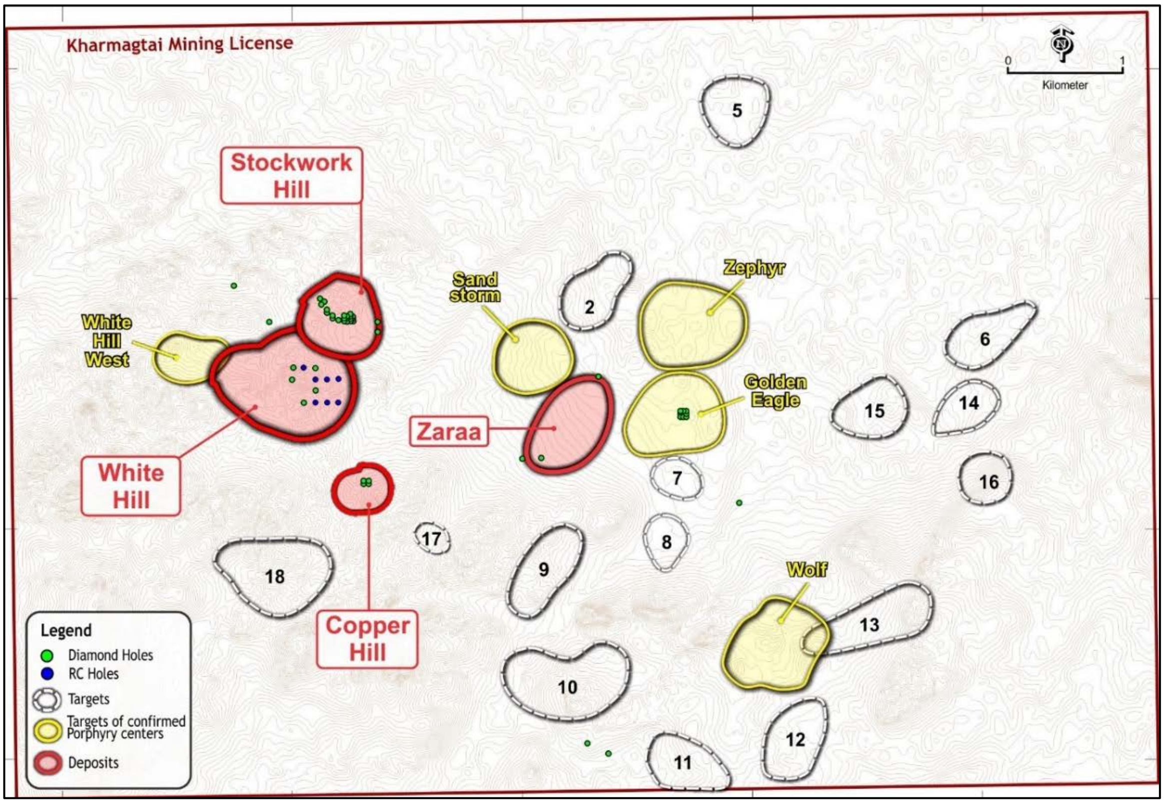

Figure 4-12: Drill hole locations since September 2018

Source: Xanadu.

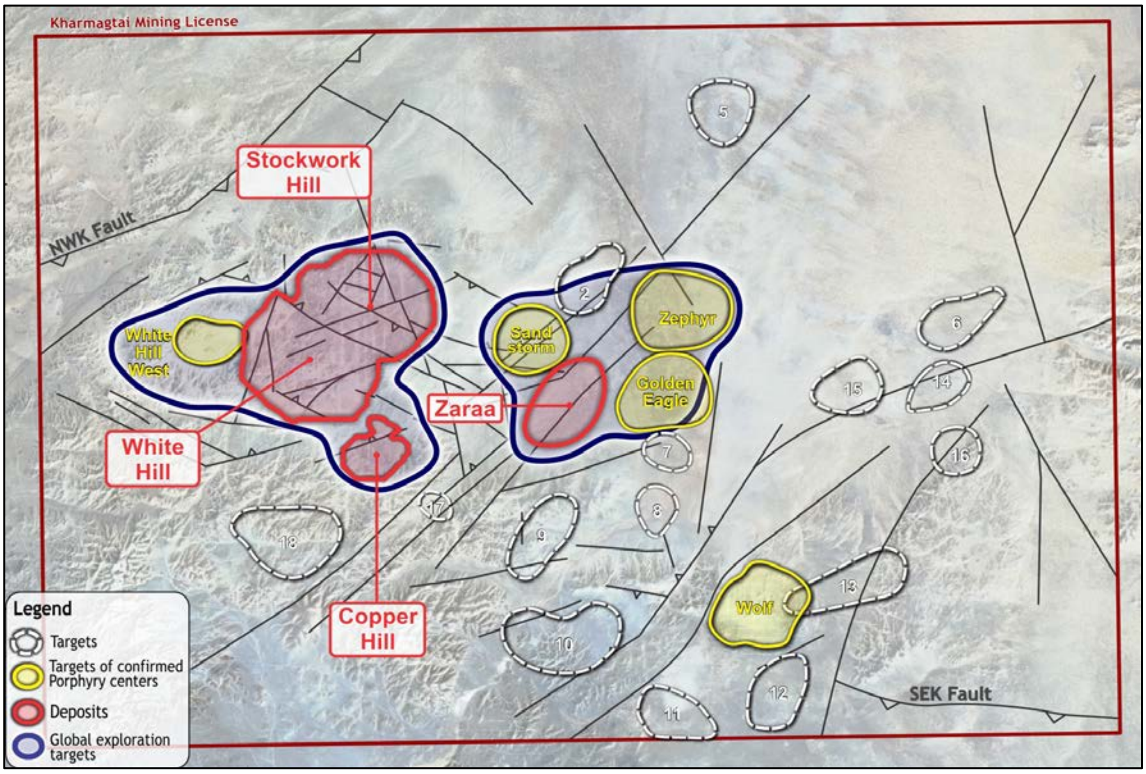

Figure 4-13: Plan view of the location of the relationship between the deposits with Mineral Resources and new Exploration Targets

Source: Xanadu.

4.3 Mineral deposits with Mineral Resources

The reported Mineral Resources at Kharmagtai consist of three separate estimates pertaining to three prospects (Stockwork Hill, White Hill and Copper Hill) that collectively form the total Mineral Resource. Mineralisation at Kharmagtai is directly related to typical porphyry-style vein and hydrothermal breccia assemblages. These assemblages demonstrate both spatial zonation and temporal overprinting relationships commonly associated with porphyry copper-gold systems, with multiple overprinting phases of intrusions and mineralisation.

The following summary provides an overview of each of the deposit geology and mineralisation characteristics and has been based on information in CSA's 2018 Mineral Resource estimate report. Further details of the Mineral Resource estimate for these deposits are provided in Section 4.4.

4.3.1 Stockwork Hill

The Stockwork Hill prospect is the second largest zone of outcropping mineralisation at Kharmagtai. Mineralisation consists of a combination of high-grade stockworks and tourmaline breccias. Two mineralised zones occurring approximately 100 m apart have been identified and denoted as North and South. Both zones are hosted within diorite and quartz diorite porphyries. The two mineralisation zones are briefly summarised as follows:

- The Southern Zone (SSZ) is 550 m long, 20–200 m wide and 600 m deep. Mineralisation consists of strong quartz-chalcopyrite-pyrite stockwork veining associated with high grade copper-gold mineralisation. Mineralisation is cross-cut by a post-mineralisation shear striking 130°.
- The Northern Zone (NSZ) is 250 m long, 150 m wide and at least 350 m deep. Mineralisation consists of a broad halo of quartz veins with localised zones of abundant quartz stockworks centred around diorite dykes. Additional high-grade gold is associated with late carbonate base metal gold veins and can be easily distinguished by associated lead and zinc values.

Recent exploration conducted after the 2018 Mineral Resource estimate have identified high-grade extensions to the deposit which were discovered when an offset zone of gold-rich bornite mineralisation was drilled south of the main tourmaline breccia body. This work has shown that Stockwork Hill may be linked at depth to a potentially larger and high-grade bornite zone.

The geophysical character of the deposit in not yet fully understood, due to the variation in the style of mineralisation. The high-density stockwork zones have been found to respond to magnetic geophysical surveying; however, the tourmaline breccia appears to be magnetically destructive. Induced polarisation (IP) geophysical surveying does not appear to discriminate between mineralisation, as the sulphides occur as massive breccia infill and are vein hosted rather than disseminated.

4.3.2 White Hill

The White Hill prospect is located approximately 300 m to the south of Stockwork Hill and it is the largest and lowest-grade mineralised body defined at Kharmagtai to date. Mineralisation consists of disseminated copper sulphides associated with high-density quartz stockwork veins, as well as tourmaline breccia bodies hosted by diorite porphyry. The White Hill stockwork zone additionally consists of a broad halo of quartz veins and hydrothermal breccias. Based on structural analysis, the known mineralisation is interpreted to be associated with a combination of a monzodiorite dyke and a series of west–northwest dipping faults. The proposed mineralisation model suggests that these faults acted as mineralised fluid pathways connected to trap sites in the magnetite-bearing quartz stockworks.

At greater depth (typically below 200 m) within the White Hill and Stockwork Hill prospects, early stockwork copper-gold mineralisation has been overprinted by late-stage tourmaline-sericite-carbonate-pyrite-chalcopyrite-bornite hydrothermal breccias and quartz-pyrite-tourmaline-carbonate-chalcopyrite veins associated with a pervasive, structurally controlled phyllic (sericite-tourmaline-chlorite) alteration.

Mineralisation occurs predominantly as cavity filling and associated alteration in the breccia clasts. Chalcopyrite-mineralised tourmaline breccias are associated with strong copper grades (0.5% Cu to >5% Cu) but typically contain little or no gold (below detection to 0.03 g/t Au). Gold-mineralised tourmaline breccias (0.3 g/t Au to 0.7 g/t Au) typically contain quartz stockwork vein fragments and clasts of stockwork mineralisation, implying that the gold may predate brecciation.

4.3.3 Copper Hill

The Copper Hill prospect is located some 500 m southeast of White Hill and is the highest-grade mineralised zone at Kharmagtai. The deposit was discovered when a small but intense magnetic geophysical high was drilled early in Kharmagtai's history. Mineralisation consists of very high-grade chalcopyrite veins overprinting an existing stockwork of quartz magnetite veins. Stockwork mineralisation is concentrically zoned around a vertically attenuated leucocratic, distinctly crystal-crowded, quartz diorite stock that intruded volcaniclastic siltstone/ sandstone. The stockwork zone forms a roughly tabular body of quartz-chalcopyrite-pyrite mineralisation trending east to east–northeast and dipping steeply south. Geometrically, the mineralised stockwork is approximately 350 m long by 100 m wide and extends to a minimum depth of 200 m. Similar structural controls have been interpreted at White Hill, with mineralisation associated with the confluence of a monzodiorite dyke and west–northwest dipping faults.

4.4 Mineral Resource estimation (Stockwork Hill, White Hill and Copper Hill)

The following section provides a summary of the CSA 2018 Mineral Resource estimate of the Kharmagtai copper-gold deposits.

- The Kharmagtai Mineral Resource estimates were estimated by CSA Global's responsible Qualified Person using Micromine version 2018.1 software.
- Separate estimates were completed for the following three deposits:
  - Stockwork Hill (Altan Tolgoi)
  - White Hill (Tsagaan Sudal)
  - Copper Hill (Zesen Uul)
- Classical statistical analysis was carried out for copper and gold separately for each deposit to determine grade populations and appropriate cut-off grades.
- The cut-off grades determined for grade shells were not ultimately used, as wireframes of vein densities (based on the geological model) were considered superior; CSA noted that the grade shells were complementary to the geological/ vein wireframes.
- The database for the Copper Hill and White Hill deposits was divided into 13 geological domains, and the database for the Stockwork Hill deposit was divided into 17 geological domains.
- Classical statistical analysis (histograms and probability plots) was used to determine top-cut grade values separately for each domain, for each element and for each deposit.
- Oxide has been separated into domains and modelled separately to sulphide but only represents ~3% of the total Mineral Resource estimate.
- Averaged semi-variogram ranges for copper and gold for each domain were used to determine the search radii for copper and gold. The ranges were used in the search ellipse and grade interpolation process. Generally, all semi-variogram ranges were greater than exploration grid spacing.
- A block model was created using Micromine and grade interpolation was undertaken using Ordinary Kriging (OK) separately for each domain. Top-cuts were applied to copper and gold grades. Silver, molybdenum and sulphur grades were interpolated without top-cuts applied.
- The block model used a parent cell size of 20 m(E) by 20 m(N) by 20 m(RL) with sub-celling to 4 m(E) by 4 m(N) by 4 m(RL) to maintain the resolution of the wireframed geological domains and rock types. The northing and easting parent cell size was selected based on approximately half of the average drill section spacing at the deposits. The model cell dimensions were also selected to provide adequate resolution to the block model in all directions.
- Over 4,500 density records are reported with density data available for each of the three deposits and within those deposits for all domains. Densities range between 2.65 t/m³ and 2.81 t/m³.
- Duplicates, standards and blank samples usage and frequency varies throughout the life of the Project. The most recent drill programs are considered in line with industry standards and best practice. In general, the QAQC (quality assurance/ quality control) is considered acceptable on all counts.
- Historical metallurgical testing was which reported recoveries of >93% reported for gold and copper. While this test work may not be fully representative of the resources, it is suitable for the stage of development of this Project.
- The Mineral Resource estimate was classified based on confidence in the adopted sampling methods, geological interpretation, drill hole spacing and geostatistical measures.

Two classifications have been made (Indicated and Inferred) for the Mineral Resource estimate. The Mineral Resource estimate was reported in accordance with Canadian Institute of Mining, Metallurgy and Petroleum (CIM) guidelines (CSA, 2018).

- Mineral Resources were reported in two parts, those that that have potential for extraction by open cut mining methods and the deeper higher-grade material outside of the open pit that may be amenable to underground mining. The open pit Mineral Resources are the parts of the deposit above a cut-off grade of 0.3% CuEq that fall within a conceptual optimised pit shell. Higher-grade material above a cut-off grade of 0.5% CuEq outside of the optimised pit shell was considered for underground mining.
- The Mineral Resource estimates reported for open pit and underground resources as prepared by CSA are presented in Table 4-5 and Table 4-6.
- SRK considers that the Mineral Resource estimates (Table 4-5 and Table 4-6) for Kharmagtai are acceptable as a reasonable representation of global grades and tonnages and are suitable for valuation purposes.

Table 4-5: Kharmagtai open pit Mineral Resource estimate as at December 2018

Deposit	Classification	Tonnes (Mt)	CuEq (%)	Cu (%)	Au (g/t)	CuEq (kt)	Cu (kt)	Au (koz)
Tsagaan Sudal (White Hill)	Indicated	45.2	0.42	0.3	0.23	189	135	340
Altan Tolgoi (Stockwork Hill)		74.4	0.59	0.38	0.41	441	286	972
Zesen Uul (Copper Hill)		9.7	0.76	0.48	0.54	73	47	167
Total Indicated		129.3	0.54	0.36	0.36	703	468	1,479
Tsagaan Sudal (White Hill)	Inferred	412.8	0.4	0.31	0.17	1,653	1,299	2,227
Altan Tolgoi (Stockwork Hill)		55.4	0.47	0.3	0.34	263	167	601
Zesen Uul (Copper Hill)		0.7	0.39	0.31	0.16	3	2	4
Total Inferred		468.9	0.41	0.31	0.19	1,919	1,468	2,832

Source: CSA, 2018.

Table 4-6: Kharmagtai Underground Resource estimate December 2018

Deposit	Classification	Tonnes (Mt)	CuEq (%)	Cu (%)	Au (g/t)	CuEq (kt)	Cu (kt)	Au (koz)
Altan Tolgoi (Stockwork Hill)	Indicated	1	1	0.45	0.46	8	5	18
Zesen Uul (Copper Hill)		0.2	0.63	0.46	0.33	1	1	2
Total Indicated		1.5	0.67	0.45	0.44	10	7	21
Altan Tolgoi (Stockwork Hill)	Inferred	3.5	0.56	0.46	0.19	19	16	21
Zesen Uul (Copper Hill)		4.8	0.68	0.43	0.49	33	21	77
Total Inferred		8.3	0.63	0.44	0.37	52	37	98

Source: CSA, 2018.

- Mineral Resources are classified according to CIM Definition Standards for Mineral Resources and Mineral Reserves (10 May 2014).
- Mineral Resources for open pit mining are estimated within the limits of an ultimate pit shell.
- Mineral Resources for underground mining are estimated outside the limits of ultimate pit shell.
- A cut-off grade of 0.3% CuEq has been applied for open pit Mineral Resources.
- A cut-off grade of 0.5% CuEq has been applied for underground Mineral Resources.

- Dry bulk density values of 2.65 t/m^3 for oxide zones; 2.76, 2.74, 2.73 and 2.71 t/m^3 for country rocks; 2.78, 2.80, 2.77, 2.81 and 2.76 t/m^3 for porphyries and 2.76 t/m^3 for andesite dykes were used for the model cells.
- CuEq (copper equivalent) was calculated using conversion factor 0.62097 for gold. Metal prices were $3.1/lb for copper and $1,320/oz for gold, recoveries – 70% for gold and 85% for copper (82.35% relative gold to copper recovery), copper.
- Copper equivalent (CuEq) formula applied: CuEq = Cu + Au * 0.62097 * 0.8235.
- Rows and columns may not add up exactly due to rounding.

4.5 Exploration targets

This section provides an overview of Exploration Targets within the Kharmagtai Project that have been completed by Xanadu in October 2019.

Exploration Targets have been defined for five areas inclusive of newly identified targets at Golden Eagle and Zaraa, as well as incorporating upside potential targets for the Stockwork Hill, White Hill and Copper Hill prospects extending beyond the previously reported Mineral Resource estimates (CSA, 2018). Exploration Targets were defined to demonstrate upside potential of the Kharmagtai Project, incorporating areas which could potentially be added to the resource inventory in the near to mid-term.

Exploration Target sizes were estimated as a range based from size and copper equivalent (CuEq) grade cut-off applied. Two types of Exploration Target have been defined:

1. Exploration Targets defined on the basis of drill hole results, as well as extensions of the 2018 Mineral Resource estimate (CSA, 2018).
2. Exploration Targets where corroborating geophysical and geological data highlight potential extensions to identified mineralisation and hence are potentially more conceptual.

Exploration Targets have been reported as a range based on CuEq cut-off grades and conservative minimum and maximum dimensions of extension (width, height and length). Exploration Target sizes are summarised in Table 4-7 and Table 4-8. Assumptions adopted by Xanadu and applied for the determination of these target sizes are listed below.

It should be highlighted that the Exploration Targets outlined in this Report are conceptual in nature as there has been insufficient exploration to define a Mineral Resource. It is uncertain if further exploration will result in the determination of a Mineral Resource under the ‘Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, the JORC Code’ (JORC 2004). The Exploration Target is not being reported as part of any Mineral Resource or Ore Reserve and the areas of mineralisation that have been reported in the 2018 Mineral Resource Upgrade have been removed from the Exploration Target area.

Table 4-7: Summary of Exploration Target sizes based on drill holes and extensions of current Mineral Resource areas

Target Name	Length*1 (m)	Width*2 (m)	Height*3 (m)	Density*4 (t/m^3)	Tonnage Range*4	Grade Range*6 (eCu)
Open Cut Exploration Targets						
White Hill	1200 to 1800	400 to 500	250 to 500	2.76	331 to 1.24 Bt	0.3% to 0.5% eCu
Stockwork Hill	800 to 900	200 to 400	150 to 250	2.76	66 to 248 Mt	0.3% to 0.5% eCu
Copper Hill	200 to 300	100 to 200	200 to 300	2.76	11 to 50 Mt	0.3% to 0.5% eCu
Golden Eagle	300 to 350	200 to 250	200 to 250m	2.76	33 to 60 Mt	0.3% to 0.5% eCu
Underground Exploration Targets						
Stockwork Hill	300 to 450	150 to 200	150 to 250	2.78	19 to 63 Mt	0.5% to 1% eCu
Zaraa	600 to 700	100 to 150	200 to 250	2.78	33 to 73 Mt	0.5% to 1% eCu

Notes:

1). Length of the Exploration Target is defined as a conservative minimum and maximum length estimation based on the distances over which drill intercepts are observed.

2). Width of the Exploration Targets is defined as a conservative minimum and maximum width estimation based on the distances over which drill intercepts are observed.

3). Height information is defined as a conservative minimum and maximum height estimation based on the distances over which drill intercepts are observed.

4). Density data is taken from drilling data and assumed to be the average rock density in the Kharmagtai dataset at grade ranges above 0.3% CuEq (2.76 t/m^3) and 0.5% eCu (2.78 t/m^3).

5). Tonnage range is estimated as a calculation of the maximum and minimum length, width and depth multiplied by the density.

6). Grade range is taken directly from drill results.

7). Numbers are rounded to avoid the false impression of a level of accuracy which may have led to the misrepresentation that this Exploration Target is akin to a Mineral Resource estimation.

8). Metallurgical recovery information is built into the CuEq calculation and therefore should not be applied in addition to the tonnages reported here.

9). A floor of 600 m from surface has been applied to the 0.3% CuEq cut-off target to represent a realistic maximum depth for a potential open cut.

10). Cut-off grades of 0.3% CuEq have been used to represent potential open cut material and 0.5% CuEq for underground material to match that used in the 2018 Mineral Resource estimate.

Table 4-8: Summary of Exploration Target sizes based on drill hole data and geophysical datasets

Target Name	Length*1 (m)	Width*2 (m)	Height*3 (m)	Density*4 (t/m^3)	Tonnage Range*4	Grade Range*6 (eCu)
Zaraa	800 to 1300	150 to 200	500 to 600	2.78	134 to 361Mt	0.5% to 1% eCu

Notes:

1). Length of the Exploration Target is defined as a conservative minimum and maximum length estimation based on the distances over which drill intercepts are observed and geological or geophysical characteristics associated with the mineralisation are observed.

2). Width of the Exploration Target is defined as a conservative minimum and maximum width estimation based on the distances over which drill intercepts are observed and geological or geophysical characteristics associated with the mineralisation are observed.

3). Height information is defined as a conservative minimum and maximum height estimation based on the distances over which drill intercepts are observed and geological or geophysical characteristics associated with the mineralisation are observed.

4). Density data is taken from drilling data and assumed to be the average rock density in the Kharmagtai dataset at grade ranges above 0.3 CuEq (2.76 t/m^3) and 0.5% CuEq (2.78 t/m^3).

5). Tonnage range is estimated as a calculation of the maximum and minimum length, width and depth multiplied by the density.

6). Grade range is taken directly from drill results.

7). Numbers are rounded to avoid the false impression of a level of accuracy which may have led to the misrepresentation that this Exploration Target is akin to a Mineral Resource estimation.

8). Metallurgical recovery information is built into the CuEq calculation and therefore should not be applied in addition to the tonnages reported here.

9). A floor of 600 m from surface has been applied to the 0.3% CuEq cut-off target to represent a realistic maximum depth for a potential open cut.

10). Cut-off grades of 0.3% eCu have been used to represent potential open cut material and 0.5% CuEq for underground material to match that used in the 2018 Mineral Resource estimate.

4.5.1 Golden Eagle

The Golden Eagle prospect was discovered in 2017, as a part of an initiative to extend exploration into new areas buried beneath surficial cover rocks. Mineralisation at Golden Eagle consists of chalcopyrite-bearing quartz-magnetite veins and disseminated chalcopyrite with free gold. A large magnetic geophysical high correlating with the high magnetite contents within the porphyry quartz veining has been observed to coincide with the mineralisation at Golden Eagle. At the time of reporting, no Mineral Resource has been defined within the Golden Eagle target zone.

Definition of the Exploration Target at Golden Eagle is based on the currently extents of drilling within the target zone. Assumed dimension ranges are provided in Table 4-7 and illustrated in Figure 4-14.

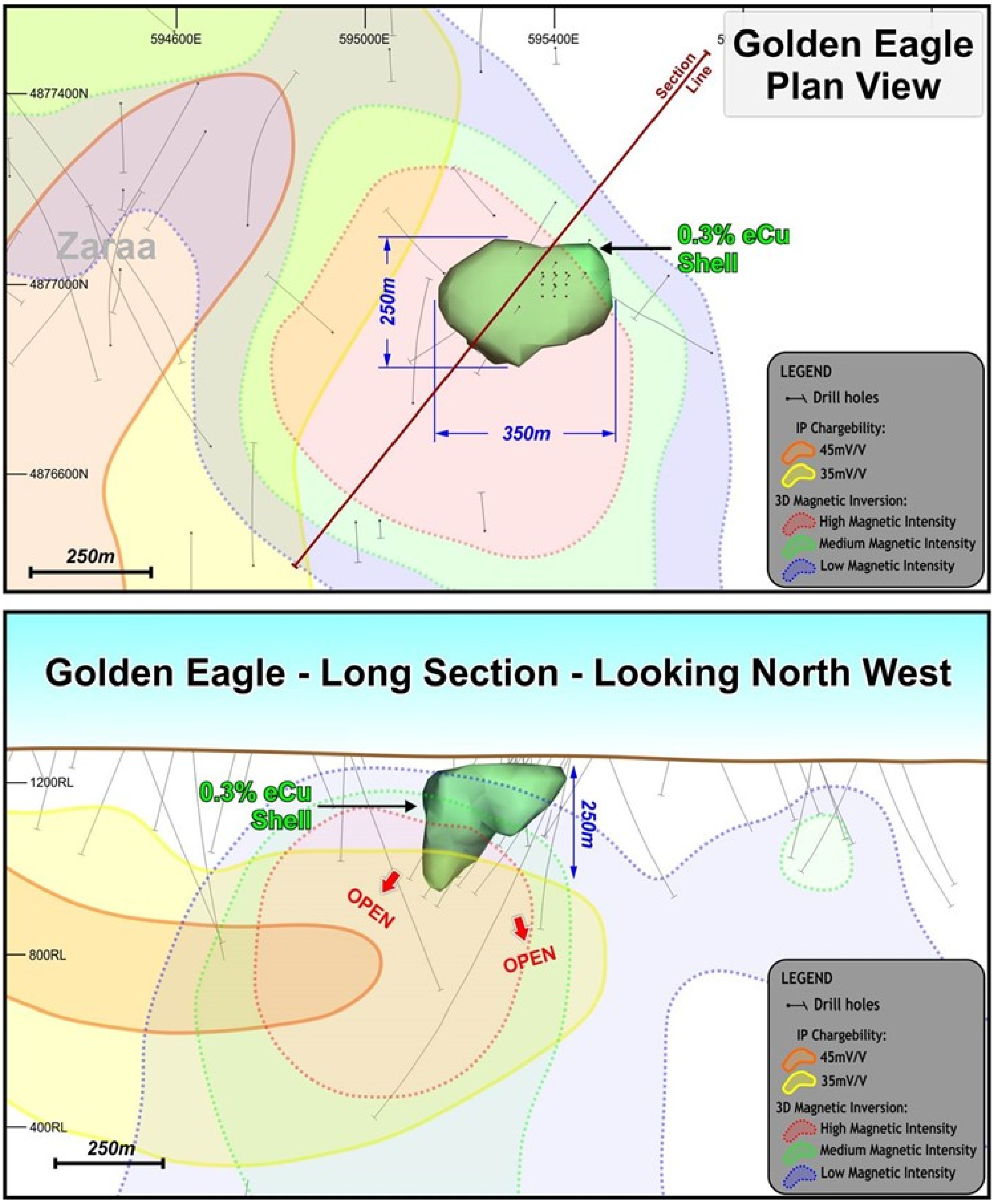

Figure 4-14: Golden Eagle Exploration Target illustrating assumed target extensions overlain over geophysical target zones (IP chargeability and 3D magnetic inversions)

4.5.2 Zaraa

The Zaraa prospect was discovered in 2018 as a part of the undercover initiative. Mineralisation at Zaraa consists of chalcopyrite-bearing quartz veins and chalcopyrite-only veining associated with a series of monzodiorite dykes. Due to the size of Zaraa and the limited amount of drilling, a conservative approach was taken by Xanadu to developing the stated Exploration Target, with only drilling data used to define potential dimensions. Assumed dimension ranges are provided in Table 4-7 and illustrated in Figure 4-15.

The Zaraa system has a very large three-dimensional induced polarity (3DIP) chargeability anomaly, which resides above and surrounding the currently defined mineralisation within the Exploration Target. As an additional Exploration Target, potential continuity of mineralisation has been assumed to continue within the geophysical anomaly at depth below the mineralisation defined within previous drilling. The dimensions and Exploration Target size are provided in Table 4-8.

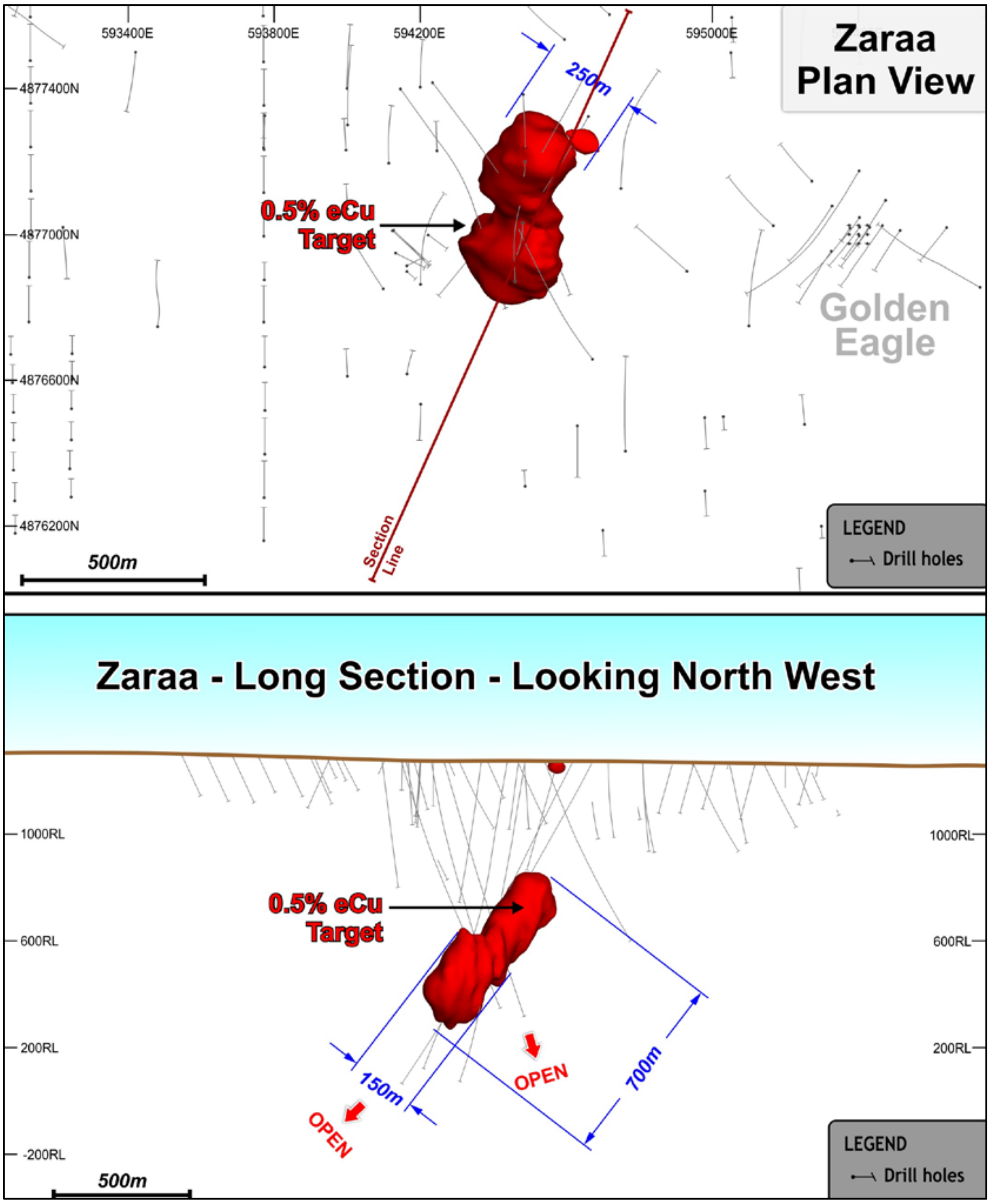

Figure 4-15: Zaraa Exploration Target illustrating interpreted 0.5 CuEq% target zone based on drill hole drilling

4.5.3 White Hill

The Exploration Target at White Hill assumes a continuity of mineralisation west along strike from the current ultimate pit design as defined within the CSA 2018 Mineral Resource estimate. The Exploration Target additionally assumes material previously not included within the Mineral Resource estimate below the ultimate pit design as upside potential as exploration continues within the area. The Exploration Target within this zone has been restricted to 500 m total depth with the previous Mineral Resource estimate excluded from the Exploration Target.

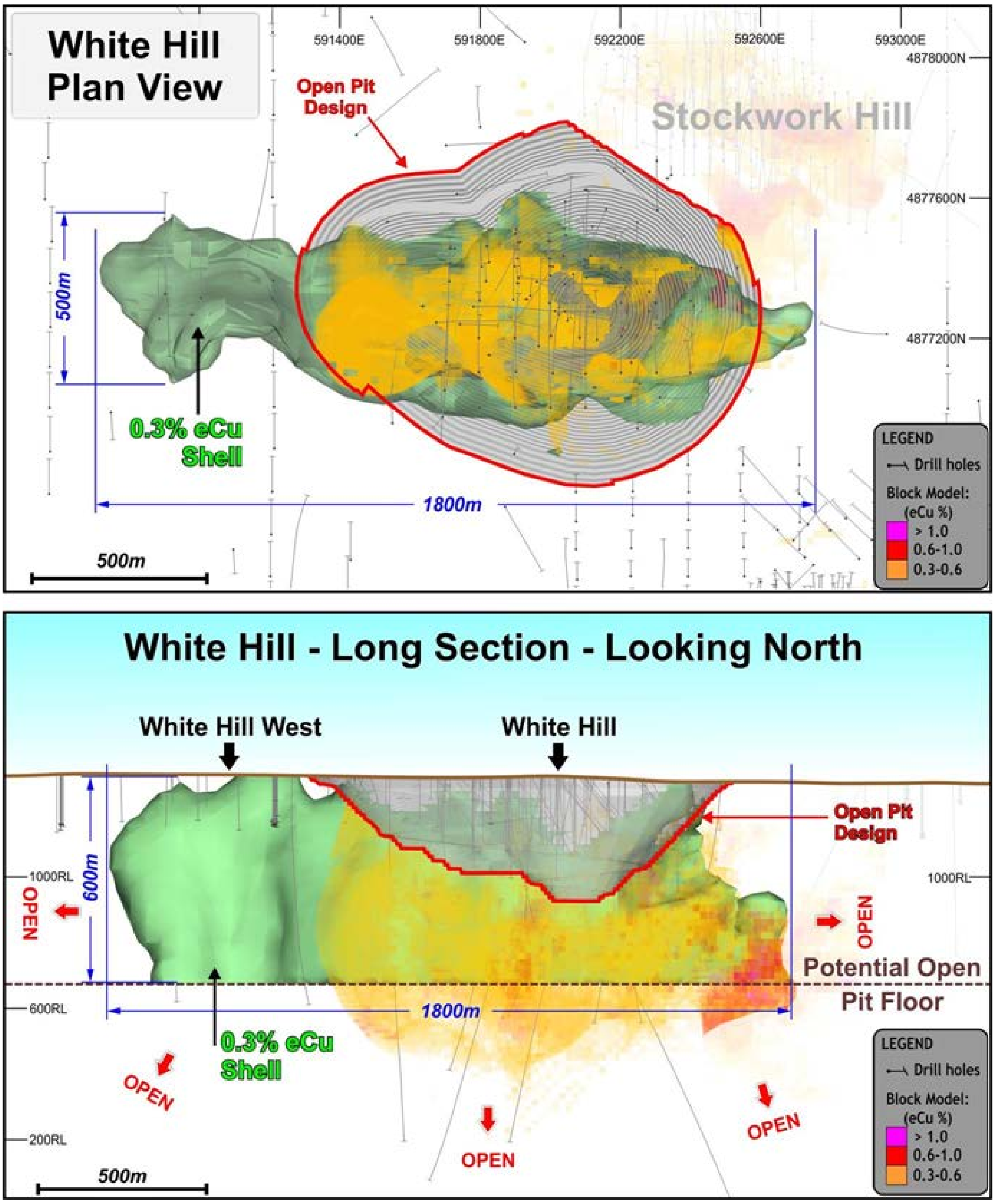

Figure 4-16: White Hill Exploration Target dimensions illustrating potential upside potential below current pit design and Mineral Resource estimate as well as western extensions

4.5.4 Stockwork Hill

The Exploration Target at Stockwork Hill assumes upside exploration potential for the 0.3% CuEq material below the current Mineral Resource estimate within the ultimate pit design as defined within the CSA 2018 Mineral Resource estimate. This zone has been restricted to 500 m total depth with the previous Mineral Resource estimate excluded from the Exploration Target. Additional higher-grade material has been defined below the current underground Mineral Resource estimate, which assumes a 0.5% CuEq cut-off grade. The underground Exploration Target assumed continuity of mineralisation above 0.5% CuEq below the current drill hole extents and Mineral Resource estimate. Assumed dimension ranges for the Stockwork Hill Exploration Targets are provided in Table 4-7 and illustrated in Figure 4-17.

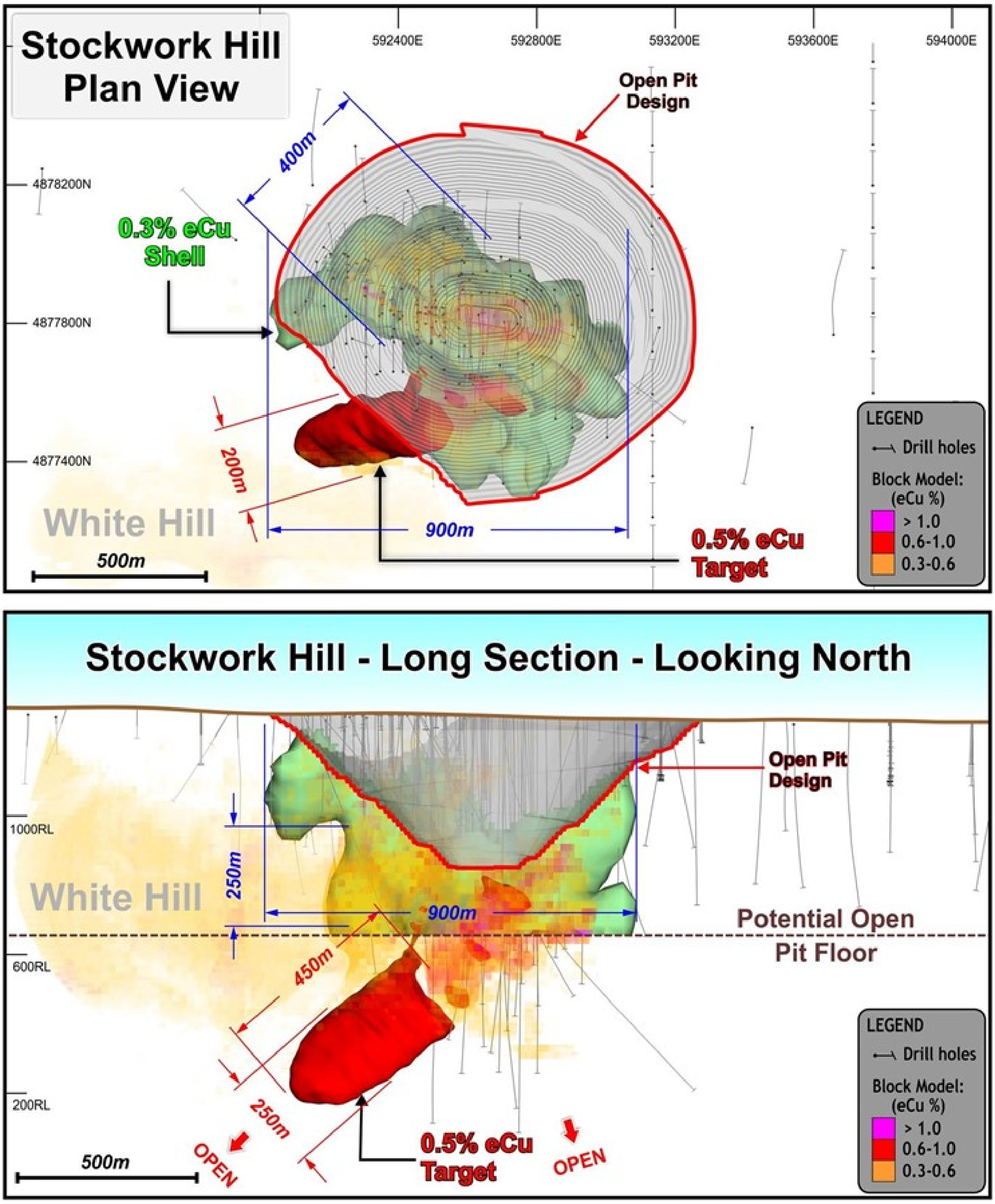

Figure 4-17: Stockwork Hill Exploration Target dimensions illustrating potential upside potential below current pit design and Mineral Resource estimate

4.5.5 Copper Hill

The Exploration Target at Copper Hill assumes upside exploration potential for the 0.3% CuEq material based from drilling below the current Mineral Resource estimate and ultimate pit design as defined within the CSA 2018 Mineral Resource estimate. This zone has been restricted to 300 m total depth with previous Mineral Resource estimate, excluded from the Exploration Target. Assumed dimension ranges for the Copper Hill Exploration Targets are provided in Table 4-7 and illustrated in Figure 4-17.

An additional target zone has been defined below the current drilling extents based on geophysical targeting. This Exploration Target assumes continuity of mineralisation within the identified geophysical anomalism. Assumed dimension ranges for the Copper Hill geophysical Exploration Targets are provided in Table 4-8.

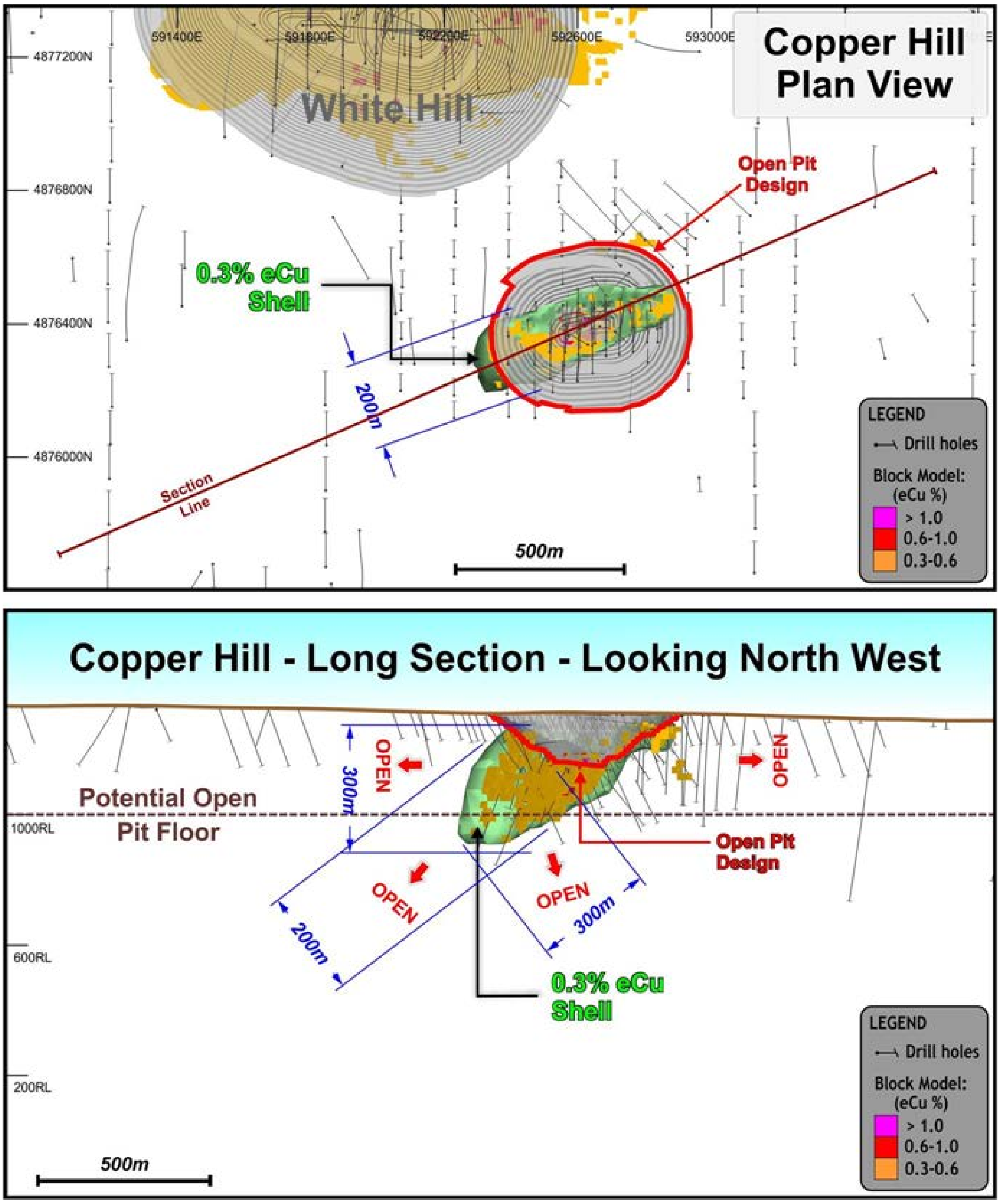

Figure 4-18: Copper Hill Exploration Target dimensions illustrating potential upside potential below current pit design and Mineral Resource estimate

4.6 Oxide Exploration Targets

In March 2019, Xanadu reported oxide gold Exploration Targets for eight target zones within the Project area (Xanadu, 2019) (Figure 4-19). Exploration Target sizes are reported in Table 4-9. The Golden Eagle Exploration Target has been superseded by the October 2019 Exploration Targets and is not included. A brief summary of each of these targets is given below. These Exploration Targets are conceptual in nature and there is insufficient information to define a Mineral Resource. It is uncertain whether further exploration will result in the determination of a Mineral Resource under the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' (JORC Code).

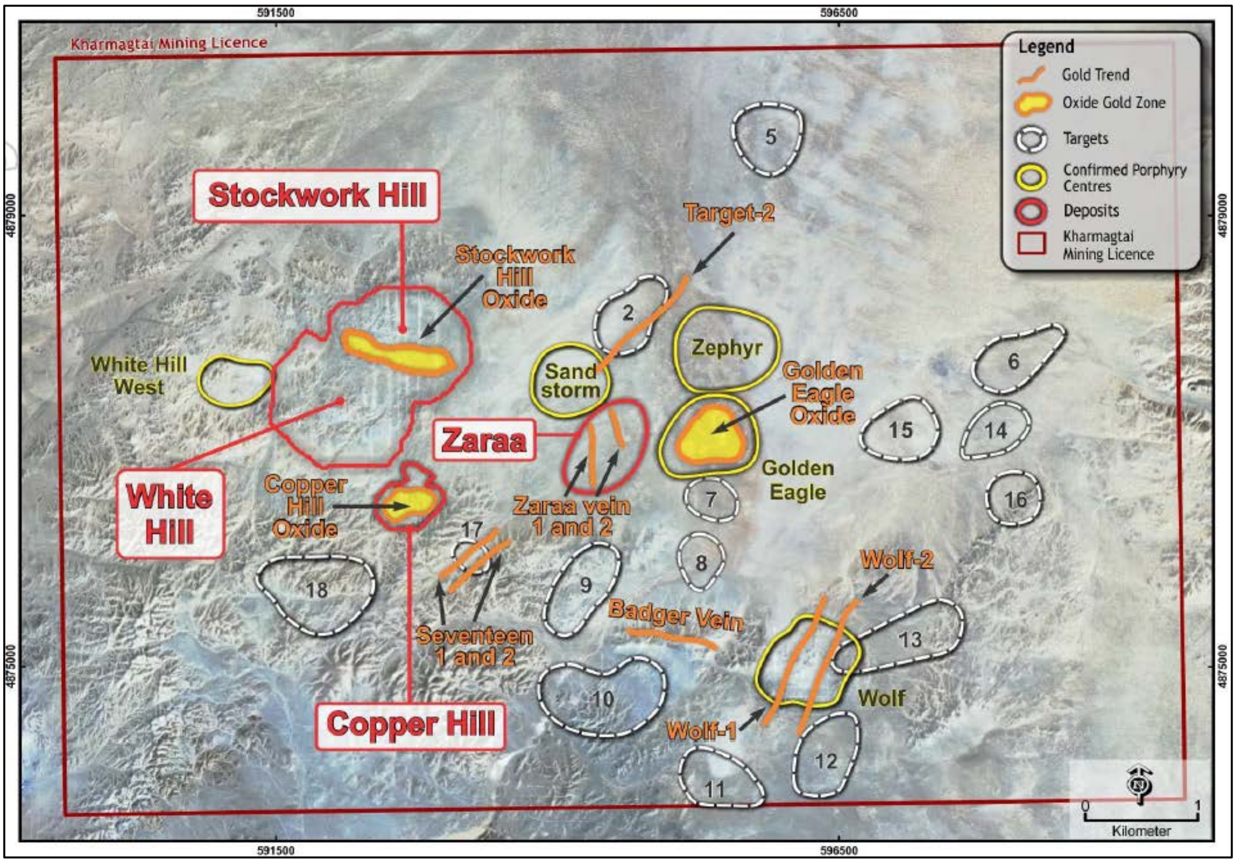

Figure 4-19: Plan view of oxide gold Exploration Targets

NB. As at October 2019, the Golden Eagle Oxide Target is included in the 2019 global Exploration Targets.

Table 4-9: Summary of oxide Exploration Target sizes

Target Name	Gold Style	Length (m)	Width (m)	Depth (m)	Density (t/m^3)	Tonnage Range	Grade Range (g/t Au)	Metallurgical Recoveries	Range including Metallurgical Factor (koz)
Copper Hill	Oxide Gold Cap	150 to 200	50 to 100	30	2.75	0.62 to 1.65 Mt	1 to 2	No metallurgy, assumed 85%	34 to 45
Stockwork Hill	Oxide Gold Cap	200 to 400	85 to 100	30	2.75	1.4 to 3.3 Mt	1 to 2	No metallurgy, assumed 85%	77 to 90
Zaraa Vein One, Vein Two	Oxide Epithermal Gold	2 × 200 to 400 m veins	2 to 3	45	2.75	99.5 to 195 kt	Vein One 2.5 to 18; Vein Two 1 to 3	No metallurgy, assumed 85%	15 to 32.75
Wolf Vein	Oxide Epithermal Gold	2 × 400 to 500 m	1.5 to 2	45	2.75	148 to 248 kt	2 to 4.5	No metallurgy, assumed 85%	16 to 22
Badger Vein	Oxide Epithermal Gold	280 to 500	1.5 to 2	45	2.75	52 to 124 kt	2.8 to 5.7	No metallurgy, assumed 85%	9.5 to 10
Seventeen	Oxide Epithermal Gold	2 x 400 to 500 m	1.5 to 2	45	2.75	128 to 248 kt	1 to 1.5	No metallurgy, assumed 85%	5.2 to 6.8
Target Two	Oxide Epithermal Gold	400 to 500	2 to 3	45	2.75	100 to 185 kt	1 to 3	No metallurgy, assumed 85%	5 to 8.2

1). Each style of gold mineralisation will manifest (size shape, gangue minerals) differently and perform differently in a metallurgical plant.

2). Length of the Exploration Target is defined as a conservative maximum and minimum length estimation based on the distances over which drill intercepts are observed and geological and geophysical characteristics associated with the mineralisation are observed.

3). Depth information is obtained from drill intercepts. The oxide/ weathering zone is often taken from geochemical data from drilling, i.e. sulphur helps define the base of oxidation as it is readily weathered and does not commonly exist in the weathering profile. The base of oxidation is interpreted to be the depth at which sulphur appears within the drill hole.

4). Density data is taken from drilling or assumed to be the average rock density in the Kharmagtai dataset (2.75 t/m^3).

5). Tonnage range is taken directly from drill results.

6). Metallurgical factor is either taken from existing metallurgical results or assumed to be 85%.

7). Potential ounces range is estimated from a calculation of tonnage ranges and grade ranges. Larger tonnage with smaller grade range and small tonnage with wider grade range.

4.6.1 Copper Hill and Stockwork Hill Oxide Exploration Targets

Shallow oxide gold potential has been identified by Xanadu within the Copper Hill and Stockwork Hill deposits. Free gold had been identified within the soil above both deposits; however, this had been sparsely drilled due to angled holes targeting the orebodies at depth below requiring stepping out from the zone directly above the orebodies. As a result, at the time of the March 2019 Exploration Target release, this material has not been fully tested and has been reported as an exploration target (ASX March 2019). Exploration Targets have been reported based on estimated length, width and depth as well as recovered grades based on the limited drilling available. These targets have not been updated for the October 2019 Exploration Target.

4.6.2 Epithermal Gold Exploration Targets

Epithermal gold potential has been identified in drilling completed within the Project area. Veins occur as carbonate base metal veins with disseminated free gold within a gangue of dolomite, calcite, chalcopyrite, galena and sphalerite. Within the oxide zones, the gangue minerals are weathered and free gold within iron oxides remains. Encountered veins range from 30 cm to 5 m in width and have an assayed grade range between 1 g/t Au and 200 g/t Au. Veins have been observed to strike over kilometres in large-scale contiguous faults. These veins represent a cooling phase of a broader porphyry mineralisation system from which the epithermal gold has been deposited. The epithermal potential of the Project area has not been an exploration focus, with larger-scale porphyries remaining the primary target; however, the exploration potential of these targets has been highlighted and they represent additional targets to the current exploration target inventory.

The dimensions of the Exploration Targets have been based on observed geological and geophysical interpretations as well as drill hole information, where available. The interpreted strike extents based on magnetic imagery for each target are illustrated in Figure 4-20.

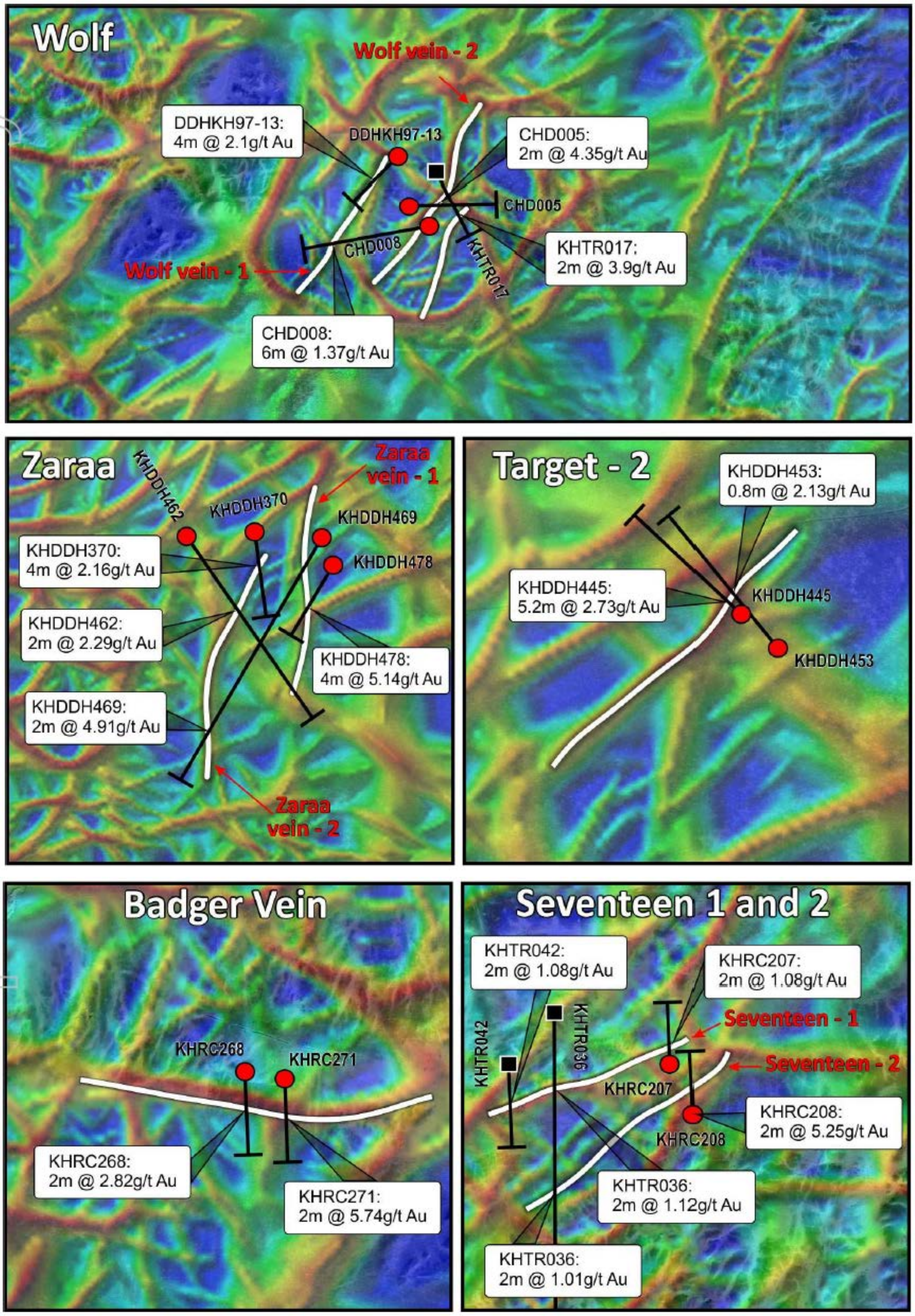

Figure 4-20: Plan view of the epithermal gold targets illustrating interpreted strike extents interpreted based on magnetic geophysical imagery

4.7 Mining studies

In April 2019, CSA Global completed a scoping study assessing the open pit mining potential of the Copper Hill, Stockwork Hill and White Hill deposits within the Kharmagtai Project area. Detailed information can be found in Xanadu's ASX announcement dated 11 April 2019.

The study was based around a standard truck, shovel and blast operation. A conventional flotation plant was also proposed with 20 Mtpa capacity producing a 23% Cu and 15.1 g/t Au concentrate, assuming recoveries of 85% for copper and 70% for gold.

Total capital costs were estimated at US$683 M. Pre-stripping over two years was included with a Life of Mine (LOM) stripping ratio of 0.67:1 (waste: mill feed). The total LOM was 15.3 years of processing a total of 305.1 Mt of mill feed grading 0.24% Cu and 0.20 g/t Au. An additional 48.7 Mt of oxide material grading 0.22% Cu was included in the waste tonnage category and stockpiled for future processing. CSA assumed the concentrate would be shipped to a smelter in China, with fees and charges based on industry norms.

SRK notes that only 27% of the mill feed was in the Indicated Mineral Resource category, with the remaining 73% classified as Inferred. No reported Ore Reserves were available at the time of the scoping study.

SRK notes that the results of this study were generally positive, showing that under the scenario envisaged, the Project has the potential to be economically viable and supporting continued exploration and project advancement.

4.8 Metallurgical studies 2019

SRK notes that additional metallurgical studies have been conducted at Kharmagtai. The results of these studies to date have generally been positive with improved recoveries reported in testing. While these studies have not been fully completed, they will likely form the basis and support for an increase to the potential depth limit which was previously used to model the existing pit shells, and which were used to constrain the current Mineral Resource estimate.

4.9 Valuation of the Kharmagtai Project

4.9.1 Comparable transactions – Mineral Resources and Exploration Targets

Mineral Resources

SRK's valuation of the Mineral Resource estimate at Kharmagtai based on analysis of comparable transactions is presented in Table 4-10.

SRK notes that there are limited comparative transactions for porphyry projects at the early to advanced stage in Mongolia and surrounding countries. In SRK's opinion, there are three transactions comparable to Kharmagtai – the Koksay transaction (dated February 2014), the Ereen Project and Handgait transaction (dated September 2012) and the Malmyzh transaction (dated October 2018).

The Koksay deposit is located in southeastern Kazakhstan around 234 km from Almaty and is favourably located with respect to existing infrastructure. At the time of the transaction in February 2014, Koksay comprised a total Mineral Resource (Measured, Indicated and Inferred) of approximately 736 Mt, with an average copper grade of 0.48%. There are by-products of gold, silver and molybdenum, although grades were not provided. The Koksay project was reported to be at the scoping study stage and transacted at an implied value of MTR 1.06% and 0.85% MTR on a normalised basis. SRK considers this transaction represents a reasonable estimate for the upper limit of the likely value that would be applied by the market to the Kharmagtai Project.

SRK notes that a more recent transaction, in 2018, involving the Koksay asset had broadly an unchanged Mineral Resource base, but the investment funds secured through the transaction were for the development of Koksay and completion of a detailed feasibility study. The implied multiple for the 2018 deal was MTR 1.63% and 1.35% MTR on a normalised basis.

The Ereen and Handgait projects are both located in the Selenge region in northern Mongolia near the Russian border. Both projects were at the advanced stage of development with declared Mineral Resources (predominantly Indicated and Inferred with a small Measured component). The Ereen project is prospective for gold and the Handgait project is prospective for molybdenum and gold mineralisation hosted in granite and granite porphyries. At the time of the transaction, both projects were located on granted mining licences. The implied transaction value of MTR 0.56% and 0.44% MTR on a normalised basis. SRK considers this transaction represents a reasonable estimate for the lower limit likely to be applied by the market to the Kharmagtai asset.

SRK further notes that the value implied by the Ereen and Handgait transaction is slightly above the implied transaction multiple paid by Xanadu for the Kharmagtai Project in 2014, which implied an MTR of 0.33% and 0.27% MTR on a normalised basis. SRK considers that since Xanadu's acquisition there would be an uplift on a resource multiple basis given the enlarged Mineral Resource base and associated increase in geological understanding of the Project area (including the estimation of Exploration Targets).

The Malmyzh project hosts Mineral Resources declared under the Russian system, which, for the purposes of comparison, SRK has treated as Inferred. The Malmyzh project has 1.39 Bt in resource at grades of 0.40% Cu and 0.21 g/t Au. SRK further notes that that the Malmyzh project resources encompass four out of 15 targets that have been the focus of exploration to date. The implied transaction multiple implied is MTR 0.85% and 0.79% MTR % on a normalised basis.

Based on SRK's analysis of the comparable transactions, SRK considers the Kharmagtai Project Mineral Resources would attract a value between US$81.3 M and US$162.6 M (Table 4-10).

Table 4-10: Valuation opinion of Kharmagtai Project Mineral Resources

Prospect	Resource Category	Total contained Mineral Value MTR (US$M)	MTR Multiple Low (%)	MTR Multiple High (%)	Low (US$M)	High (US$M)
Kharmagtai Mineral Resources	Indicated & Inferred	18,070	0.45	0.90	81.3	162.6

Source: SRK analysis.

Exploration Targets

SRK notes that while a number of transactions include both Mineral Resources and Exploration Targets, there are no transactions involving Exploration Targets exclusively. SRK has assumed that a reasonable buyer would take these targets into consideration when purchasing the relevant assets, but would assign the majority of value to the stated Mineral Resources. In lieu of actual transactions, SRK considers it reasonable to assign the Exploration Targets a value based on the low value multiple for defined Mineral Resources being representative of the upper range for an Exploration Target multiple. The upper range has then been divided by five (5) to determine the likely low range in line with the Yardstick Method's rationale and outline a low value multiple as reported in Table 4-11. SRK has rounded the low MTR value up to 0.05% in order to provide a more meaningful range.

SRK notes that the Kharmagtai oxide Mineral Resources are reported for gold only, but have been valued based on a CuEq basis. This was calculated on the same basis as used in the MTR method. SRK notes that the resultant values are low and are currently not material to the final and overall value of the Kharmagtai Project.

Table 4-11: Valuation opinion of Kharmagtai Project Exploration Targets

Prospect	Resource Category	Total contained Mineral Value MTR (US$M)	Multiple Low (%)	Multiple High (%)	Low (US$M)	High (US$M)
Kharmagtai Global Exploration Target	Exploration Target	6.64	0.05	0.15	19.1	57.4
Kharmagtai Oxide Exploration Target	Exploration Target	0.07	0.05	0.15	0.2	0.6
				Total	**19.3**	**58.0**

Source: SRK analysis.

4.9.2 Yardstick – Mineral Resources and Exploration Targets

Mineral Resources

As an order of magnitude check on the values implied by market comparatives, SRK has also considered the value of the Kharmagtai Project Mineral Resources using the Yardstick methodology (Table 4-12).

Based on standard industry yardsticks, SRK considers the market would value the defined Mineral Resources at the Kharmagtai Project between US$115.4 M and US$230.8 M.

Table 4-12: Yardstick valuation of the Kharmagtai Project Mineral Resources

Resource Category	Resource Tonnage (Mt)	Calculated Contained CuEq MTR basis (t)	Low Yardstick Multiple	High Yardstick Multiple	Low Value (US$M)	High Value (US$M)
Indicated	130.80	870,322	1.00%	2.00%	50.1	100.2
Inferred	477.20	2,267,287	0.50%	1.00%	65.3	130.6
Total	**608.00**	**3,137,610**			**115.4**	**230.8**

Source: SRK analysis.

Exploration Targets

As an order of magnitude check on the values implied by comparative transactions, SRK also valued the Kharmagtai Exploration Targets using the Yardstick methodology (Table 4-13). In consideration of the large size and range of the Exploration Targets, SRK has selected yardstick factors at the low end of the standard industry yardsticks for Exploration Targets.

Based on the Yardstick methodology only, SRK considers the market would value the Kharmagtai Project Exploration Targets between US$38.64 M and US$115.92 M.

Table 4-13: Yardstick valuation of the Kharmagtai Project Exploration Targets

Prospect	Resource Tonnage (Mt)	Calculated Contained CuEq MTR basis (t)	Low Yardstick Multiple	High Yardstick Multiple	Low Value (US$M)	High Value (US$M)
Kharmagtai Global Exploration Target	1,361.0	6,639,250.0	0.10%	0.30%	38.24	114.71
Kharmagtai Oxide Exploration Target	4.25	69,775	0.10%	0.30%	0.40	1.21
Total	**1,365.2**	**6,709,025.0**			**38.64**	**115.92**

Source: SRK analysis.

4.9.3 Peer multiple analysis

Mineral Resources

To further assess the market value of the Kharmagtai Project, SRK has reviewed the Enterprise Value (EV) of selected listed companies (ASX, AIM, OTC and TSX-V) with defined resources as reported by S&P Global Market Intelligence. The EV is based on each company's most recently reported financial and share registry information for the most recent quarter, being June 2019.

SRK has identified a number of publicly traded companies with assets primarily located in Asia and the Asia-Pacific region. These companies hold predominantly copper and gold mineral assets. Most of these companies hold multiple (3+) operating assets, in addition to pre-production, early and advanced stage assets.

SRK has carried out an analysis of these companies and their attributable Mineral Resources on a CuEq basis in order to determine an EV multiple. The results of SRK's analysis are provided in Table 4-14 and full details are provided in Appendix A-3.

Table 4-14: Peer multiple Mineral Resource analysis

Statistical analysis	Peer multiple (EV US$/CuEq tonne)
Companies with few assets and 1 or 2 operating assets	
Minimum	42.15
Median	92.99
Average	183.37
Maximum	595.54
Weighted average	227.34
Companies with no operating assets	
Minimum	53.74
Median	70.20
Average	79.91
Maximum	115.78
Weighted average	70.81

SRK identified the following two companies with predominantly gold and copper resource projects at the construction (or earlier stages) without operating assets that can be considered most comparable to the Kharmagtai Project:

- Steppe Gold Limited (Mongolia)
- Manila Mining Corporation (Philippines).

Steppe Gold Limited holds three copper/gold projects in Mongolia – Altan Tsagaan Ovoo (undergoing commissioning), Uudam Khundii (exploration project) and Bayan Undur (exploration project). The Altan Tsagaan Ovoo is Steppe's primary project and contains predominantly gold with additional silver lead and zinc. The Altan Tsagaan Ovoo project is currently undergoing commissioning, with first pour expected in 2019.

The Manila Mining Corporation holds two projects – Briggs Colorado project (closed?) and the Kalayaan project (pre-development). The Mineral Resources at Briggs Colorado were the subject of a former mining operation in the early 1990s, with production recorded until 1996. The Mineral Resources at Kalayaan are current as of 2019 and exploration is ongoing.

Based on its analysis of peer companies holding copper or gold projects with defined Mineral Resources that do not have operating assets, SRK considers the current market would pay between US$50/t CuEq and US$80/t CuEq held in resource. Applying these multiples to the total resource base of 3.14 Mt CuEq available at Kharmagtai implies a value range of between US$156.9 M and US$251.0 M on a 100% equity basis.

SRK considers that the resultant values are high as there are no comparable companies with advanced and or pre-development projects only. The most comparative projects discussed above are at feasibility stage or have previously been in operation and therefore command a higher price. Given the available data, SRK considers that the low value indicated represents an appropriate measure of upper limit to the value of the Kharmagtai Mineral Resources.

4.9.4 Valuation of the Kharmagtai exploration potential

Comparable transactions

SRK's valuation of the exploration tenure at Kharmagtai using comparable transactions is presented in Table 4-15.

In SRK's opinion, the transactions considered most comparable to the Kharmagtai Project are the two Oyuut Ulaan (Red Mountain) transactions. The first transaction, dated June 2013, transacted at an implied value of US$205,234/km² and US$230,783/km² on a normalised basis. The second transaction in April 2016 transacted at an implied multiple of US$74,121/km² and US$90,130/km² on a normalised basis.

As per SRK's analysis in Section 2.5.3, there is also a clear trend towards increased area multiples with decreasing tenure size; the values paid by Xanadu for Red Mountain are supported by the range of additional porphyry transactions in Mongolia having small to moderate tenure sizes.

SRK acknowledges that as the Kharmagtai Project is held under a mining licence, SRK considers it reasonable to position the value range between the average and high of the porphyry projects in Mongolia with small tenure sizes (≤ 50 km²)

Based on this, SRK considers the market would assign a value between US$130,000/km² and US$230,000/km² to a 100% interest in the Kharmagtai Project resulting in a low value of US$7.3 M and a high value of US$13.0 M for the remaining area outside of the defined Mineral Resource and Exploration Target areas.

Table 4-15: Kharmagtai Project exploration tenure – Comparable transactions

Tenure	Total Area Valued (km²)	Multiple Low (US$/km²)	Multiple High (US$/km²)	Low (US$M)	High (US$M)
Mining Licence (MV-017387)	56.45	130,000	230,000	7.3	13.0

Note: *Resource (4.05 km²) and Exploration Target (6km²) areas subtracted from total area.

Geoscientific approach

As an order of magnitude check, SRK has also valued the Kharmagtai Project exploration tenure using the geoscientific method as shown in Table 4-17.

SRK notes that the base acquisition cost (BAC) for an average mining licence in Mongolia can be calculated using only the rental costs plus reasonable administration costs, as there are no minimum expenditure requirements. Annual fees are applied on a per hectare basis, which according to Thompson Reuters, 2019 is MNT21,750 or approximately US$8.0/ha, which indicates rental payments of ~US$800/km². SRK has assumed an additional cost for administration of US$10,000 per year, which assuming an average area of 50 km², equates to US$200/km² for a total BAC of US$1,000/km².

SRK has further cross-checked this against the holding costs for the Kharmagtai mining licence, which is US$80,000 per year, or US$1,203/km². Based on this rationale, SRK considers that a BAC of US$1,000/km² is likely to be slightly conservative, but reasonable, as a supporting method for the comparative transactions.

Table 4-16: SRK's modified property rating criteria for the geoscientific approach

<table>
<tr><th>Rating</th><th>Off-property factor</th><th>On-property factor</th><th>Geological factor</th><th>Anomaly factor</th></tr>
<tr><td>0.1</td><td></td><td></td><td>Unfavourable geological setting</td><td>No mineralisation identified – area sterilised</td></tr>
<tr><td>0.5</td><td>Unfavourable district/ basin</td><td>Unfavourable area</td><td>Poor geological setting</td><td>Extensive previous exploration provided poor results</td></tr>
<tr><td>0.9</td><td></td><td></td><td>Generally favourable geological setting, under cover or complexly deformed or metamorphosed</td><td>Poor results to date</td></tr>
<tr><td>1.0</td><td>No known mineralisation in district</td><td>No known mineralisation on lease</td><td rowspan="2">Generally favourable geological setting</td><td>No targets outlined</td></tr>
<tr><td>1.5</td><td>Minor workings</td><td>Minor workings or mineralised zones exposed</td><td>Target identified, initial indications positive</td></tr>
<tr><td>2.0</td><td rowspan="2">Several old workings in district</td><td rowspan="2">Several old workings or exploration targets identified</td><td>Multiple exploration models being applied simultaneously</td><td></td></tr>
<tr><td>2.5</td><td>Well-defined exploration model applied to new areas</td><td rowspan="2">Significant grade intercepts evident but not linked on cross sections or long sections</td></tr>
<tr><td>3.0</td><td rowspan="2">Mine or abundant workings with significant previous production</td><td rowspan="2">Mine or abundant workings with significant previous production</td><td rowspan="2">Significant mineralised zones exposed in prospective host rock</td></tr>
<tr><td>3.5</td><td rowspan="2">Several economic grade intercepts on adjacent sections</td></tr>
<tr><td>4.0</td><td>Along strike from a major deposit</td><td rowspan="2">Major mine with significant historical production</td><td>Well-understood exploration model, with valid targets in structurally complex area, or under cover</td></tr>
<tr><td>5.0</td><td>Along strike for a world class deposit</td><td>Well-understood exploration model, with valid targets in well understood stratigraphy</td><td></td></tr>
<tr><td>6.0</td><td></td><td></td><td>Advanced exploration model constrained by known and well-understood mineralisation</td><td></td></tr>
<tr><td>10.0</td><td></td><td>World class mine</td><td></td><td></td></tr>
</table>

Source: Modified after Xstract, 2009 and Agricola Mining Consultants, 2011.

Table 4-17: Kharmagtai Project exploration tenure – Geoscientific approach – modified Kilburn rating

BAC/km² US$1,000 for a mining licence				Off-property		On-property		Geology		Anomaly		Technical value (US$M)		Market Factor	Valuation (US$M)	
Tenement (sub-block)	Area (km²)	BAC (US$)	Equity	Low	High	Low	High	Low	High	Low	High	Low	High		Low	High
Kharmagtai ML (MV-017387)	56.45	56,450	100%	2	3	2.5	3	4	5	3	3.5	3.39	8.89	1.00	3.39	8.89

Note: Mineral Resource (4.05 km²) and Exploration Target (6km²) areas subtracted from total area.

5 Valuation Summary

SRK's valuation of the Kharmagtai Project is summarised in Table 5-1. SRK has relied on the Comparative Transaction methodology to derive its selected value range for the stated Mineral Resources, Exploration Targets and the exploration tenure.

SRK's preferred value for the defined Mineral Resources at Kharmagtai has been determined as the average of the Malmyzh, Ereen and Handgait and Koksay transaction multiples, or ~0.70% MTR.

SRK's preferred value for the Exploration Targets has been selected as the mid-point of the range as SRK has no preference to either end of the range.

SRK's preferred value for the exploration potential was determined in consideration of the average of the normalised transaction multiples which was US$130,000/km^2. SRK has chosen to position its preferred value above the mid-point in recognition of the fact that the exploration potential is associated with a granted mining licence, enabling the rapid progression towards mining should appropriate technical studies prove positive.

SRK considers these preferred values are broadly supported by the secondary valuation methods.

Table 5-1: Kharmagtai Project – Valuation summary

Valuation Basis	Valuation Methodology	Total Contained Mineral Value MTR basis (US$M)	Contained Copper Eq MTR basis (Mt)	Project Multiple Low	Project Multiple High	Project Multiple Preferred	Low (US$M)	High (US$M)	Preferred (US$M)
Mineral Resources	Comparable Sales (MTR %)	18,070	3.14	0.45%	0.90%	0.70%	81.3	162.6	126.5
	Peer Analysis (MTR US$/Cueq t)	18,070	3.14	50	80		156.9	251.0	
	Yardstick (%)	18,070	3.14	0.5% - 1.0%	1.0% - 2.0%		115.4	230.8	
						Selected	**81.3**	**162.6**	**126.5**
Global Exploration Targets	Comparable Sales (MTR%)	38,237	6.64	0.05%	0.15%	0.10%	19.1	57.4	38.2
	Yardstick (%)	38,237	6.64	0.10%	0.30%		38.2	114.7	
						Selected	**19.1**	**57.4**	**38.2**
Oxide Exploration Targets	Comparable Sales (MTR%)	402	0.07	0.05%	0.15%	0.10%	0.2	0.6	0.4
	Yardstick (%)	402	0.07	0.10%	0.30%		0.4	1.2	
						Selected	**0.2**	**0.6**	**0.4**
Valuation Basis	**Valuation Methodology**	Total **Contained** Area (km²)	**Area Valued (km²)***	**Project Multiple Low**	**Project Multiple High**	**Project Multiple High**	**Low (US$M)**	**High (US$M)**	**Preferred (US$M)**
Remaining Exploration Area	Comparable Sales (US$/km²)	65.5	56.45	130,000	230,000	150,000	7.3	13.0	8.5
	Geoscientific Method	65.5	56.45				3.4	8.9	
						Selected	**7.3**	**13.0**	**8.5**
						Total	**108.0**	**233.6**	**173.6**

Note: Mineral Resource (4.05 km²) and Exploration Target (6 km²) areas subtracted from total area.

Based on its review of the values implied by the various valuation methodologies, SRK considers the market would pay in the range between US$108.0 M and US$233.6 M, with a preferred value of US$173.6M for a 100% interest in the Kharmagtai Project, as at the Valuation Date.

After taking Xanadu's effective and beneficial 76.5% interest into account, SRK considers Xanadu's interest in the Kharmagtai Project would range between US$82.6 M and US$178.7 M, with a preferred value of US$132.8.0 M.

Table 5-2: Valuation summary – Xanadu's 76.5% beneficial interest – as at 28 October 2019

Project/ Prospect Name	Low (US$M)	High (US$M)	Preferred (US$M)
Kharmagtai	82.6	178.7	132.8

5.1 Discussion on SRK's valuation range

In assigning its valuation range and preferred value, SRK is mindful that the valuation range is also indicative of the uncertainty associated with early to advanced stage exploration assets.

The range in value is driven by the confidence limits placed around the size and grade of mineralised occurrences assumed to occur within each project area. Typically, this means that as exploration progresses, and a prospect moves from an early to advanced stage prospect, through Inferred, Indicated or Measured Mineral Resource categories to Ore Reserve status, there is greater confidence around the likely size and quality of the contained mineral and its potential to be extracted profitably.

Table 5-3 presents a general guide of the confidence in targets, resource and reserve estimates, and hence value, referred to in the mining industry.

Table 5-3: General guide regarding confidence for target and Resource/ Reserve estimates

Classification	Estimate range (90% confidence limit)
Proven/ Probable Reserves	±5 to 10%
Measured Resources	±10 to 20%
Indicated Resources	±30 to 50%
Inferred Resources	±50 to 100%
Exploration Target	+100%

This level of uncertainty with advancing project stages is shown in Figure 5-1.

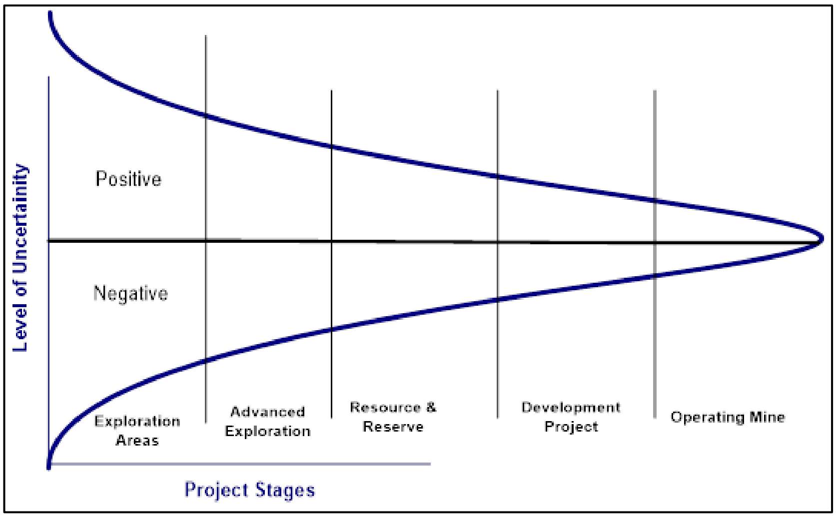

Figure 5-1: Uncertainty by advancing exploration stage

Estimated confidence of +/-60% to 100% or more are not uncommon for exploration areas and are within acceptable bounds, given the level of uncertainty associated with early stage exploration assets. By applying narrower confidence ranges, a greater degree of certainty regarding these assets is implied than may be the case. Where possible, SRK has endeavoured to narrow its valuation range.

5.2 Valuation risks

SRK is conscious of the risks associated with valuing assets which can have an impact on the valuation range. In defining its valuation range, SRK notes that there are always inherent risks involved when deriving any arm's length valuation. These factors can ultimately result in significant differences in valuations over time. The key risks include, but are not limited to, risks outlined in the following subsections.

5.2.1 Resources and Reserves

Resources and Reserve estimates prepared under the JORC Code (2012) are best estimates based on individual judgement and reliance upon knowledge and experience using industry standards and the available database.

5.2.2 Mining and production risk

While SRK considers the risk associated with mining and processing to be low, it considers the infrastructure risk to be moderate.

5.2.3 Environmental risk

SRK considers the environmental risk at the Project to be low, given the appropriate approvals and permits are in place.

5.2.4 Land access

SRK considers the land access risk to be low, given the status of the tenure at the Valuation Date.

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Appendices

Appendix A: Comparable Transactions

Table A-1: Comparable transactions with Resources

Project	Assets	Country	Development Stage	Date	Vendor	Purchaser	Consideration (100% basis) (US$M)	Tonnage (Mt)	Total Contained Mineral Value (US$M)	MTR (%)	Normalised (MTR %)
Shuak property	Shuak	Kazakhstan	Target Outline	Nov-16	GRK-Aksu	Central Asia Metals Plc	2.50	49.55	1,782.45	0.140%	0.148%
Kharmagtai Project	Kharmagtai	Mongolia	Advanced Exploration	Feb-14	Turquoise Hill Resources Ltd	Xanadu Mines Ltd	18.30	133.00	5,479.15	0.334%	0.269%
Ereen Project & Handgait	Ereen Project & Handgait	Mongolia	Advanced Exploration	Sep-12	Central Asia Metals plc	Mongolian Resource Co	12.10	98.79	2,163.20	0.559%	0.398%
Akdjol-Tokhtazan property	Tokhtazan	Kyrgyzstan	Reserves Development	Aug-16	Orsu Metals Corporation	Private investors	2.00	22.68	1,941.74	0.103%	0.125%
Taldybulak Talas	Taldybulak Talas	Kyrgyzstan	Pre-feas/ Scoping	Dec-13	Gold Fields Ltd	Robust Resources Ltd	25.00	452.70	14,455.23	0.173%	0.138%
Malmyzh	Malmyzh	Russia	Advanced Exploration	Oct-18	IG Copper LLC	Russian Copper Company	392.16	1,661.00	46,158.30	0.850%	0.787%
Frieda River	Frieda River	Papua New Guinea	Feasibility	Aug-14	Glencore Plc	Pan Aust Ltd	109.25	2,123.00	94,054.12	0.116%	0.096%
Tampakan	Tampakan	Philippines	Feasibility	Aug-15	Glencore Plc	Alsons Group	560.00	2,940.00	96,956.07	0.578%	0.649%
Tampakan	Tampakan	Philippines	Feasibility	Jan-15	Glencore Plc	Indophil Resources	251.47	2,940.00	109,885.81	0.229%	0.226%
Talas mining interests	Andash, Taldybulak Talas	Kyrgyzstan	Feasibility, Pre-feas/ Scoping	Apr-16	Tengri Resources Plc	Socagest SA	6.00	452.70	13,394.18	0.045%	0.053%
Koksay Project	Koksay	Kazakhstan	Pre-feas/ Scoping	Feb-14	CCC Mining Construction B.V.	Kazakhmys PLC	260.00	716.67	24,593.28	1.057%	0.852%
Koksay Project	Koksay	Kazakhstan	Pre-feas/Scoping	Jun-18	KAZ Minerals PLC	China Nonferrous Metal Industry's Foreign Engineering And Construction Co Ltd	360.82	736.00	22,133.62	1.630%	1.348%
Andash	Andash	Kyrgyzstan	Preproduction	May-13	Kentor Gold Ltd	Robust Resources Ltd	20.00	19.20	1,516.91	1.318%	1.047%
Aucu Project	Aucu	Kyrgyzstan	Pre-feas/Scoping	Jul-19	White Cliff Minerals Limited	Pangea Gold Corp Ltd	2.00	20.15	1,058.45	0.189%	0.183%
West Lombok property	West Lombok	Indonesia	Feasibility Started	Sep-17	Southern Arc Minerals Inc	PT Ancora Indonesia Resources Tbk	2.22	78.53	3,170.98	0.070%	0.061%
Aucu Project	Aucu	Kyrgyzstan	Reserves Development	Jan-17	Somerley Group Limited	White Cliff Minerals Limited	6.34	20.30	972.17	0.652%	0.653%
Grasberg Mine	Grasberg	Indonesia	Operating	Jul-18	Investor group	PT Indonesia Asahan Aluminium (Persero)	8,359.21	4,175.00	361,099.03	2.315%	2.133%
Karchiga Project	Karchiga	Kazakhstan	Feasibility Complete	Oct-17	Orsu Metals Corporation	CMSS Global Supply and Trading – FZC	6.24	10.82	1,345.50	0.463%	0.392%
Quellaveco	Quellaveco	Peru	Construction Started??	Jun-18	Anglo American Plc	Mitsubishi Corporation	2,739.73	2,960.10	84,515.54	3.242%	2.680%
Kyrgyz mineral assets	Shambesai	Kyrgyzstan		Aug-16	Manas Resources Limited	Guizhou Geological and Mineral Resources Development Company Limited	10.00	17.30	1,639.91	0.610%	0.739%
Karchiga Project	Karchiga	Kazakhstan	Feasibility Complete	Apr-16	Orsu Metals Corporation	Karasat Trading FZE	10.29	10.82	981.25	1.049%	1.239%
Changkeng Gold Project	Changkeng	China	Reserves Development	May-15	Minco Gold Corporation	Minco Silver Corporation	22.04	7.96	1,254.90	1.757%	1.607%
Savoyardy assets	Savoyardy	Kyrgyzstan	Pre-feas/Scoping	Aug-16	Manas Resources Limited	Private Investor - Mr Xijin Han	0.50	0.21	54.92	0.910%	1.103%
Eastern Dragon Project	Eastern Dragon	China	Preproduction	Feb-14	Eldorado Gold Corporation	CDH Investments	200.00	5.70	1,558.46	12.833%	10.338%
Komarovskoye Project	Komarovskoye	Kazakhstan	Operating	Apr-16	Glencore Plc	Polymetal International Plc	143.47	28.00	1,677.46	8.553%	10.109%
Dalabai Gold Project	Dalabai	Kazakhstan	Operating	Jul-15	Central Asia Resources Limited	Uroven OMR LLP	5.75	3.98	139.90	4.110%	4.338%
Jinfeng property	Jinfeng	China	Operating	Apr-16	Eldorado Gold Corporation		365.85	27.73	4,297.81	8.513%	10.061%

Table A-2: Comparable transactions on an area basis

Project	Assets	Country	Development Stage	Mineralisation Style	Date	Vendor	Purchaser	Consideration (100% basis) (US$M)	Area (km²)	Area Multiple (US$/km²)	Normalised Area Multiple (US$/km²)
Chandman-yol	Chandman-Yol	Mongolia	Target Outline	Porphyry	Nov-07	Gallant Minerals Ltd	Altan Rio Minerals Ltd	3.75	825.00	4,545.45	8,516.33
Bronze Fox	Bronze Fox	Mongolia	Target Outline	Porphyry	Aug-11	Private interest	Kincora Copper Ltd	59.60	223.23	266,989.20	229,281.56
Bronze Fox	Bronze Fox	Mongolia	Target Outline	Porphyry	Apr-11	Origo Partners Plc	Brazilian Diamonds Ltd	16.67	223.23	74,661.41	76,158.28
Khul Morit	KM	Mongolia	Exploration	Porphyry	May-11	Unnamed company	Voyager Resources Ltd	6.90	50.00	138,095.81	137,913.22
Oyut Ulaan Project	Oyut Ulaan (Red Mountain)	Mongolia	Exploration	Epithermal, Porphyry Deposit	Apr-16	Enkhtunkh Delkhi	Xanadu Mines Limited	2.96	40.00	74,121.07	90,130.73
Vantage LLC	Oyut Ulaan (Red Mountain)	Mongolia	Exploration	Epithermal, Porphyry Deposit	Jun-13	Aberdeen Investments	Xanadu Mines Limited	8.21	40.00	205,234.33	230,783.39
Khul Morit (Mongolian Assets	Khongor, KM	Mongolia	Target Outline	Epithermal or Porphyry?	Mar-16	Carajas Copper Company Limited	Rare Elements LLC	0.36	33.95	10,723.53	13,009.58
Ulaan exploration license	Ulaan	Mongolia	Advanced Exploration	Porphyry	Aug-17	Leader Exploration LLC	Erdene Resource Development Corporation	2.65	17.80	148,711.17	175,084.27
Wonogiri	Wonogiri	Indonesia	Exploration	Porphyry	Dec-10	Minerals and Metals Group (China Minmetals)	Augur Resources Ltd	4.38	39.28	111,379.84	120,993.70
Oyadao South License	Oyadao South	Cambodia	Exploration	Porphyry	Jun-16	Angkor Gold Corporation	JOGMEC	5.88	235.00	25,031.29	29,623.76
Oyadao North Concession	Oyadao	Cambodia	Target Outline	Porphyry	Jan-16	Angkor Gold Corporation	Mesco Gold Ltd	1.47	222.00	6,624.27	9,114.13
Exploration tenements on Tatau and Big Tabar Islands	Tatau and Big Tabar Islands	Papua New Guinea	Exploration	Porphyry	Nov-16	St Barbara Limited	Newcrest Mining Limited	46.93	260.00	180,512.82	220,195.47
Star Mountain project	Star Mountains	Papua New Guinea	Target Outline	Porphyry	Dec-14	Highlands Pacific Limited	Anglo American Plc	233.33	515.00	453,074.43	570,043.13
EL 2306 (Abundance Valley)		Papua New Guinea		Porphyry	Jul-17	Khor Eng Hock & Sons (PNG) Limited	Gold Mountain Limited	5.88	328.00	17,940.97	21,911.71
Luang Namtha	Luang Namtha	Laos	Target Outline	Porphyry	Apr-09	Amanta Resources Ltd	JOGMEC	5.88	200.00	29,411.76	49,908.81
Trenggalek Project	Trenggalek	Indonesia	Exploration	Porphyry/ Epithermal - High Sulphidation	Sep-15	Arc Exploration Limited	PT Danusa Tambang Nusantara	12.50	299.69	41,709.77	56,016.73
Gorontalo properties	Biyonga, Tahele, Tapadaa, Toluludu	Indonesia		Porphyry/ Epithermal - High Sulphidation	May-14	MMG Limited	Augur Resources Limited	0.23	393.98	587.36	688.47
Blue Eyes & Sujigtei	Blue Eyes	Mongolia	Feasibility	Vein Hosted	Oct-10	Alamar Resources Ltd	MetalsX Limited	38.55	1,997.00	19,303.00	21,727.42
Kou Sa	Kou Sa	Cambodia	Advanced Exploration	Epithermal	Dec-12	Golden Resource Development	Worldwide Mining Projects Ltd (Geopacific)	17.29	158.00	109,456.44	98,140.10
Tenements on Tatau & Big Tabar	Tatau and Big Tabar Islands	Papua New Guinea	Early to Advanced	?	Nov-16	St Barbara Limited	Newcrest PNG Exploration Ltd	37.33	260.00	143,589.74	175,155.49
Trenggalek project	Trenggalek	Indonesia	Target Outline	Porphyry / Epithermal	Oct-18	Arc Exploration Limited	Undisclosed buyer	0.08	299.69	250.61	311.47
Koan Nheak property	Koan Nheak	Cambodia		Epithermal	Jul-17	Angkor Gold Corporation	Emerald Resources NL	4.31	189.00	22,823.94	27,875.39
Mabilo	Mabilo	Philippines	Advanced Exploration	Skarn (mesomatic)	May-13	Sierra Mining Ltd	Galeo Equipment and Mining Co Inc	11.81	34.83	338,947.91	362,092.06
Feni	Feni	Papua New Guinea	Exploration	?	Aug-06	New Guinea Gold Corp	Vangold Resources Ltd	6.15	166.60	36,905.32	88,126.87
Andewa licence EL-2461	Andewa	Papua New Guinea	Target Outline	Porphyry/ Epithermal	Apr-17	WNB Resources Limited	Frontier Resources Limited	0.07	147.00	451.92	538.85

Project	Assets	Country	Development Stage	Mineralisation Style	Date	Vendor	Purchaser	Consideration (100% basis) (US$M)	Area (km^2)	Area Multiple (US$/$km^2$)	Normalised Area Multiple (US$/$km^2$)
Arcatamu Goldmine project		China	Exploration	?	Dec-15	Xinjiang Nanwo Mining Limited	Northern Mining Limited	10.52	19.89	528,816.92	742,577.44
Kuta Ridge Project	Kuta Ridge	Papua New Guinea	Early Exploration	Porphyry/ Epithermal - High Sulphidation	Mar-19	Shareholders of Kuta Ridge Exploration Inc	Orefinders Resources Inc	1.04	89.00	11,651.72	13,529.75
EL 2306 (Abundance Valley)	Wabag	Papua New Guinea	Target Outline	?	Jul-17	Khor Eng Hock & Sons (PNG) Limited	Gold Mountain Limited	5.29	328.00	16,132.53	19,703.02
Mt Hagen JV	Mt Hagen	Papua New Guinea	Exploration	?	Jan-10	Pacific Niugini Ltd	ElDore Mining Corp Ltd	3.33	855.00	3,898.64	5,267.80
Manus Island	Manus Island	Papua New Guinea	Exploration	?	Sep-10	Triple Plate Junction Plc	Newcrest Mining Ltd	8.92	674.00	13,241.26	15,737.49
Nakru	Nakru	Papua New Guinea	Target Outline	Epithermal low sulphidation/ VMS	Oct-09	Coppermoly Ltd	Barrick Gold Corp	25.89	170.00	152,277.17	220,509.86
El Paso Exploration Permit 009		Philippines	Exploration	?	Sep-15	Red Mountain Mining Limited	JIWON Resource Corp	1.96	21.90	89,553.98	120,272.10
Four licences	Kratie North, Kratie South, Memot	Cambodia	Target Outline	?	Jul-17	Mekong Minerals Limited	Emerald Resources NL	10.00	861.00	11,614.40	14,184.93
Jimi	Jimi	Papua New Guinea	Exploration	?	Aug-09	Frontier Resources Ltd	Harmony Gold Mining Co Ltd	0.25	192.00	1,311.31	2,086.46
Boston	Boston	Philippines	Exploration	?	Jul-11	Boston Minerals Mining Corp	Sentosa Mining Ltd	2.42	3.39	714,157.02	685,926.76
Lakuwahi	Romang Island	Indonesia	Target Outline	Epithermal / VMS	Apr-10	PT Gemala Borneo Utama (PT GBU)	Robust Resources Ltd	73.38	250.00	293,500.48	385,967.26

Table A-3: Peer analysis companies with predominantly (copper/ gold) Asian or Asia-Pacific assets

Company	Listing Code	Assets	Country of Primary Assets	EV (US$M)	Market Cap (US$M)	Total Attributable Resources (Mt)	Attributable Contained Gold Troy Ounces (M)	Attributable Contained Silver Troy Ounces (M)	Attributable Contained Copper (Mt)	Attributable Contained Zinc (Mt)	Attributable Contained Lead (Mt)	Total Attributable CuEq tonnes (Mt)	Peer multiple (EV US$/ MTR CuEq t)
Chengtun Mining Group Co. Ltd	600711	E'ma Mining, Guizhou Huajin, Congo (DRC), Yinxin Mining, Fengchi Mining, Xinsheng Mining, Hengyuan Xinmao, Sanxin Mining	Kazakhstan	2,411.5	1,818.2		0.89					0.23	10,323.79
Sichuan Hongda Co. Ltd	600331	Mchuchuma, Lanping Jinding, Liganga, Aidai, Shifang	Mongolia	1,041.3	949.8			3.04	0.74			0.75	1,380.36
Sinomine Resource Grp Co Ltd	002738	Kamatete, Mirdita, Shivuma, Albanian Pilates, Dongpeng plant Plant	Mongolia	491.7	530.9		0.35		0.33	0.12		6.09	80.69
Philex Mining Corp.	PX	Silangan, Kalayaan, Padcal, Bulawan, Lascogon, Diplahan, Bulog, Cayas	Kyrgyzstan	540.9	347.1		17.12		3.81			8.30	65.15
PT J Rsrc Asia Pasifik Tbk	PSAB	Doup, Gorontalo, North Lanut, Penjom, Seruyung, Bakan	Russia	875.0	449.7	297.2489	8.81					2.31	378.46
Tibet Huayu Mining Co. Ltd	601020	Kangqiao, Adyabo, Huayu, Longzi, Zhaxikang, TALCO	Kyrgyzstan	1,063.9	847.8		7.15	332.28	0.00			2.92	363.86
Yunnan Chihong & Germanium Co.	600497	Selwyn, Xinhe, Zhaotong, Yongchang, Lancang, Red Star, Qilinchang, Hulun Buir Chihong Smelter	Papua New Guinea	5,756.8	3,891.5			1.35		24.05	7.91	12.58	457.44
Zhongjin Gold Corp. Ltd	600489	Qianchang, Sanxin, Jinling, Jinshan, Dadiangou, Qiyugou, Shuangwang, Hademen, Yuerya, Jinniu, Jinchangyu, Sunite Jinxi, Yantai Xintai, Paishanlou, Hebei, Sangjiayu, Xin Yuan, Jiapigou, Qinling	Kyrgyzstan	7,490.5	5,161.1		12.36		0.18			10.13	739.72
Shandong Gold Mining Co. Ltd.	600547	Veladero, Yang Jia, Xincheng, Sanshandao, Linglong, Jiaojia, Laixishanhou, Arehada, Gansu Zhongbao, Sizhuang, Yinan, Penglai, Laizhou, Jinzhou,Chaihu Lanzi, Fujian Yuanxin, Shandong	Philippines	14,314.1	13,273.0	579.89	39.25					10.29	1,390.59
Western Mining Co. Ltd.	601168	Yulong, Xitieshan, Chai Dahl, Xiasai Yindou, Saishitang, Huogeqi, Dachaidan, Gacun	Philippines	5,207.4	2,213.9			406.49	4.07	2.49	2.51	7.26	717.66

Company	Listing Code	Assets	Country of Primary Assets	EV (US$M)	Market Cap (US$M)	Total Attributable Resources (Mt)	Attributable Contained Gold Troy Ounces (M)	Attributable Contained Silver Troy Ounces (M)	Attributable Contained Copper (Mt)	Attributable Contained Zinc (Mt)	Attributable Contained Lead (Mt)	Total Attributable CuEq tonnes (Mt)	Peer multiple (EV US$/ MTR CuEq t)
Lingbao Gold	3330	Henan region, Istanbul, Tieliekelin, Duolanasayi, Chifeng Jinchan, Akesu, Xinjiang region, Habahe Huatai, Lingbao Smelter, Nanshan	Kyrgyzstan	633.1	162.6	32.97353	5.88					1.54	410.16
Lepanto Consolidated Mining Co	LCB	Far Southeast, Lepanto, Lepanto (closed)	Kyrgyzstan	174.0	167.1	363.58	8.53		1.89			4.13	42.15
China Gold International Resources Corp Ltd	CGG	Jiama, CSH 217	Kazakhstan	1,594.6	497.0		10.21					2.68	596
Apex Mining Co	APX	Itogon-Suyoc, Paracale, Maco, Modi Tuang	Kazakhstan	213.1	137.3	28.20	3.65					0.96	222.8
Steppe Gold Ltd	STGO	Altan Tsagaan Ovoo, Uudam Khundii, Bayan Undur	Mongolia	24.2	23.8		0.83	6.46		0.18	0.10	0.34	70.2
Manila Mining Corp	MA	Kalayaan, Briggs-Colorado	Indonesia	40.4	40.4	79.14	2.04		0.22			0.75	53.7
United Paragon Mining Corp	UPM	Longos, Negros, San Mauricio	Kazakhstan	33.6	33.1	3.16	1.11					0.29	115.8

Source: S&P Financial.

SRK Report Client Distribution Record

Project Number: XML003

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Date Issued: 5 November 2019

Name/Title	Company
Andrew Stewart	Xanadu Mines Ltd

Rev No.	Date	Revised By	Revision Details
0	31/10/ 2019	Mathew Davies	Draft Report
1	05/11/2019	Alex Thin	Final Report

APPENDIX 2: KHARMAGTAI TABLE 1 (JORC 2012)

1.1 JORC TABLE 1 – SECTION 4 ESTIMATION AND REPORTING OF ORE RESERVES

Set out below is Section 1 and Section 2 of Table 1 under the JORC Code, 2012 Edition for the Kharmagtai project. Data provided by Xanadu. This Table 1 updates the JORC Table 1 disclosure dated 31 July 2018.

1.2 JORC TABLE 1 - SECTION 1 - SAMPLING TECHNIQUES AND DATA

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.*	• The resource estimate is based on diamond drill core samples, RC chip samples and channel samples from surface trenches. • Representative ½ core samples were split from PQ, HQ & NQ diameter diamond drill core on site using rock saws, on a routine 2m sample interval that also honours lithological/intrusive contacts. • The orientation of the cut line is controlled using the core orientation line ensuring uniformity of core splitting wherever the core has been successfully oriented. • Sample intervals are defined and subsequently checked by geologists, and sample tags are attached (stapled) to the plastic core trays for every sample interval. • RC chip samples are ¼ splits from one meter intervals using a 75%:25% riffle splitter to obtain a 3kg sample • RC samples are uniform 2m samples formed from the combination of two ¼ split 1m samples.
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• The Mineral Resource estimation has been based upon diamond drilling of PQ, HQ and NQ diameters with both standard and triple tube core recovery configurations, RC drilling and surface trenching with channel sampling. • All drill core drilled by Xanadu has been oriented using the "Reflex Ace" tool.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.*	• Diamond drill core recoveries were assessed using the standard industry (best) practice which involves: removing the core from core trays; reassembling multiple core runs in a v-rail; measuring core lengths with a tape measure, assessing recovery against core

Criteria	JORC Code explanation	Commentary
	• *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.*	block depth measurements and recording any measured core loss for each core run. • Diamond core recoveries average 97% through mineralization. • Overall, core quality is good, with minimal core loss. Where there is localized faulting and or fracturing core recoveries decrease, however, this is a very small percentage of the mineralized intersections. • RC recoveries are measured using whole weight of each 1m intercept measured before splitting • Analysis of recovery results vs grade shows no significant trends that might indicate sampling bias introduced by variable recovery in fault/fracture zones.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• All drill core is geologically logged by well-trained geologists using a modified "Anaconda-style" logging system methodology. The Anaconda method of logging and mapping is specifically designed for porphyry Cu-Au mineral systems and is entirely appropriate to support Mineral Resource Estimation, mining and metallurgical studies. • Logging of lithology, alteration and mineralogy is intrinsically qualitative in nature. However, the logging is subsequently supported by 4 Acid ICP-MS (48 element) geochemistry and SWIR spectral mineralogy (facilitating semi-quantitative/calculated mineralogical, lithological and alteration classification) which is integrated with the logging to improve cross section interpretation and 3D geological model development. • Drill core is also systematically logged for both geotechnical features and geological structures. Where drill core has been successfully oriented, the orientation of structures and geotechnical features are also routinely measured. • Both wet and dry core photos are taken after core has been logged and marked-up but before drill core has been cut.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality*	• All drill core samples are ½ core splits from either PQ, HQ or NQ diameter cores. A routine 2m sample interval is used, but this is varied locally to honour lithological/intrusive contacts. The minimum allowed sample length is 30cm. • Core is appropriately split (onsite) using

Criteria	JORC Code explanation	Commentary
	and appropriateness of the sample preparation technique. • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	diamond core saws with the cut line routinely located relative to the core orientation line (where present) to provide consistency of sample split selection. • The diamond saws are regularly flushed with water to minimize potential contamination. • A field duplicate ¼ core sample is collected every 30th sample to ensure the "representivity of the in situ material collected". The performance of these field duplicates are routinely analysed as part of Xanadu's sample QC process. • Routine sample preparation and analyses of DDH samples were carried out by ALS Mongolia LLC (ALS Mongolia), who operates an independent sample preparation and analytical laboratory in Ulaanbaatar. • All samples were prepared to meet standard quality control procedures as follows: Crushed to 75% passing 2mm, split to 1kg, pulverised to 85% passing 200 mesh (75 microns) and split to 150g sample pulp. • ALS Mongolia Geochemistry labs quality management system is certified to ISO 9001:2008. • The sample support (sub-sample mass and comminution) is appropriate for the grainsize and Cu-Au distribution of the porphyry Cu-Au mineralization and associated host rocks.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• All samples were routinely assayed by ALS Mongolia for gold • Au is determined using a 25g fire assay fusion, cupelled to obtain a bead, and digested with Aqua Regia, followed by an atomic absorption spectroscopy (AAS) finish, with a lower detection (LDL) of 0.01 ppm. • All samples were also submitted to ALS Mongolia for the 48 element package ME-ICP61 using a four acid digest (considered to be an effective total digest for the elements relevant to the MRE). Where copper is over-range (>1% Cu), it is analysed by a second analytical technique (Cu-OG62), which has a higher upper detection limit (UDL) of 5% copper. • Quality assurance has been managed by insertion of appropriate Standards (1:30 samples – suitable Ore Research Pty Ltd certified standards), Blanks (1:30 samples), Duplicates (1:30 samples – ¼ core duplicate)

Criteria	JORC Code explanation	Commentary
		by XAM. • Assay results outside the optimal range for methods were re-analysed by appropriate methods. • Ore Research Pty Ltd certified copper and gold standards have been implemented as a part of QC procedures, as well as coarse and pulp blanks, and certified matrix matched copper-gold standards. • QC monitoring is an active and ongoing processes on batch by batch basis by which unacceptable results are re-assayed as soon as practicable. • Prior to 2014: Cu, Ag, Pb, Zn, As and Mo were routinely determined using a three-acid-digestion of a 0.3g sub-sample followed by an AAS finish (AAS21R) at SGS Mongolia. Samples were digested with nitric, hydrochloric and perchloric acids to dryness before leaching with hydrochloric acid to dissolve soluble salts and made to 15ml volume with distilled water. The LDL for copper using this technique was 2ppm. Where copper was over-range (>1% Cu), it was analysed by a second analytical technique (AAS22S), which has a higher upper detection limit (UDL) of 5% copper. Gold analysis method was essentially unchanged.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• All assay data QAQC is checked prior to loading into XAM's Geobank data base. • The data is managed by XAM geologists. • The data base and geological interpretation is managed by XAM. • Check assays are submitted to an umpire lab (SGS Mongolia) for duplicate analysis. • No twinned drill holes exist. • There have been no adjustments to any of the assay data.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• Diamond drill holes have been surveyed with a differential global positioning system (DGPS) to within 10cm accuracy. • The grid system used for the project is UTM WGS-84 Zone 48N • Historically, Eastman Kodak and Flexit electronic multi-shot downhole survey tools have been used at Kharmagtai to collect down hole azimuth and inclination information for the majority of the diamond drill holes. Single shots were typically taken every 30m to 50m during

Criteria	JORC Code explanation	Commentary
		the drilling process, and a multi-shot survey with readings every 3-5m are conducted at the completion of the drill hole. As these tools rely on the earth's magnetic field to measure azimuth, there is some localised interference/inaccuracy introduced by the presence of magnetite in some parts of the Kharmagtai mineral system. The extent of this interference cannot be quantified on a reading-by-reading basis. • More recently (since September 2017), a north-seeking gyro has been employed by the drilling crews on site (rented and operated by the drilling contractor), providing accurate downhole orientation measurements unaffected by magnetic effects. Xanadu have a permanent calibration station setup for the gyro tool, which is routinely calibrated every 2 weeks (calibration records are maintained and were sighted) • The project DTM is based on 1 m contours from satellite imagery with an accuracy of ±0.1 m.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• Holes spacings range from <50m spacings within the core of mineralization to +500m spacings for exploration drilling. Hole spacings can be determined using the sections and drill plans provided. • Holes range from vertical to an inclination of -60 degrees depending on the attitude of the target and the drilling method. • The data spacing and distribution is sufficient to establish anomalism and targeting for porphyry Cu-Au, tourmaline breccia and epithermal target types. • Holes have been drilled to a maximum of 1,300m vertical depth. • The data spacing and distribution is sufficient to establish geological and grade continuity, and to support the Mineral Resource classification.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if*	• Drilling is conducted in a predominantly regular grid to allow unbiased interpretation and targeting. • Scissor drilling, as well as some vertical and oblique drilling, has been used in key mineralised zones to achieve unbiased sampling of interpreted structures and mineralised zones, and in particular to assist in constraining the geometry of the mineralised

Criteria	JORC Code explanation	Commentary
	material.	hydrothermal tourmaline-sulphide breccia domains.
Sample security	• *The measures taken to ensure sample security.*	• Samples are delivered from the drill rig to the core shed twice daily and are never left unattended at the rig. • Samples are dispatched from site in locked boxes transported on XAM company vehicles to ALS lab in Ulaanbaatar. • Sample shipment receipt is signed off at the Laboratory with additional email confirmation of receipt. • Samples are then stored at the lab and returned to a locked storage site.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Internal audits of sampling techniques and data management are undertaken on a regular basis, to ensure industry best practice is employed at all times. • External reviews and audits have been conducted by the following groups: • 2012: AMC Consultants Pty Ltd. was engaged to conduct an Independent Technical Report which reviewed drilling and sampling procedures. It was concluded that sampling and data record was to an appropriate standard. • 2013: Mining Associates Ltd. was engaged to conduct an Independent Technical Report to review drilling, sampling techniques and QAQC. Methods were found to conform to international best practice. • 2018: CSA Global reviewed the entire drilling, logging, sampling, sample shipping and laboratory processes during the competent persons site visit for the 2018 MRe, and found the systems and adherence to protocols to be to an appropriate standard.

1.3 JORC TABLE 1 - SECTION 2 - REPORTING OF EXPLORATION RESULTS

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the*	• The Project comprises 1 Mining Licence (MV-17387A). • The Kharmagtai mining license MV-17387A is 100% owned by Oyut Ulaan LLC. Xanadu has an 85% interest in Mongol Metals LLC, which has 90% interest in Oyut Ulaan LLC. The remaining 10% in Oyut Ulaan LLC is owned by Quincunx (BVI) Ltd ("Quincunx"). • The Mongolian Minerals Law (2006) and

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<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td>time of reporting along with any known impediments to obtaining a licence to operate in the area.</td><td>Mongolian Land Law (2002) govern exploration, mining and land use rights for the project.</td></tr>
<tr><td>Exploration done by other parties</td><td>Acknowledgment and appraisal of exploration by other parties.</td><td>Detailed exploration was conducted by Quincunx Ltd, Ivanhoe Mines Ltd and Turquoise Hill Resources Ltd including extensive surface mapping, trenching, diamond drilling, surface geochemistry and geophysics.</td></tr>
<tr><td>Geology</td><td>Deposit type, geological setting and style of mineralisation.</td><td>The mineralisation is characterised as porphyry copper-gold type.
Porphyry copper-gold deposits are formed from magmatic hydrothermal fluids typically associated with felsic intrusive stocks that have deposited metals as sulphides both within the intrusive and the intruded host rocks. Quartz stockwork veining is typically associated with sulphides occurring both within the quartz veinlets and disseminated thought out the wall rock. Porphyry deposits are typically large tonnage deposits ranging from low to high grade and are generally mined by large scale open pit or underground bulk mining methods. The prospects at Kharmagtai are atypical in that they are associated with intermediate intrusions of diorite to quartz diorite composition; however the deposits are significant in terms of gold:copper ratio, and similar to other gold-rich porphyry deposits.</td></tr>
<tr><td>Drill hole Information</td><td>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:
easting and northing of the drill hole collar
elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar
dip and azimuth of the hole
down hole length and interception depth
hole length.
If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the</td><td>Diamond holes, RC holes and trenches are the principal source of geological and grade data for the Project.
<table>
<tr><th>Timing</th><th>RC Holes</th><th>Metre</th><th>DDH Holes</th><th>Metre</th><th>RC & DDH</th><th>Metre</th><th>Trench</th><th>Metre</th></tr>
<tr><td>Drilling <2015</td><td>155</td><td>24553</td><td>252</td><td>88511</td><td>0</td><td>0</td><td>106</td><td>39774</td></tr>
<tr><td>Drilling >2015</td><td>68</td><td>13107</td><td>116</td><td>57876</td><td>22</td><td>5323</td><td>17</td><td>5618</td></tr>
<tr><td>Total</td><td>223</td><td>37660</td><td>368</td><td>146387</td><td>22</td><td>5323</td><td>123</td><td>45392</td></tr>
</table>
See figures in main report.</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
	Competent Person should clearly explain why this is the case.	
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *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.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• Weighted averages have not been used in this work • Some compositing has been used in this resource but with statistically relevant techniques that do not include internal dilution The copper equivalent (eCu) calculation represents the total metal value for each metal, multiplied by the conversion factor, summed and expressed in equivalent copper percentage with a metallurgical recovery factor applied. The copper equivalent calculation used is based off the eCu calculation defined by CSA in the 2018 Mineral Resource Upgrade. Copper equivalent (CuEq or eCu) grade values were calculated using the following formula: eCu or CuEq = Cu + Au * 0.62097 * 0.8235, Where: Cu - copper grade (%) Au - gold grade (g/t) 0.62097- conversion factor (gold to copper) 0.8235 - relative recovery of gold to copper (82.35%) The copper equivalent formula was based on the following parameters (prices are in USD): • Copper price - 3.1 $/lb (or 6834 $/t) • Gold price - 1320 $/oz • Copper recovery - 85% • Gold recovery - 70% Relative recovery of gold to copper = 70% / 85% = 82.35%.
Relationship between mineralisation widths and	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation*	• Mineralised structures are variable in orientation, and therefore drill orientations have been adjusted from place to place in order to allow intersection angles as close as

Criteria	JORC Code explanation	Commentary
intercept lengths	*with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	possible to true widths. • Exploration results have been reported as an interval with 'from' and 'to' stated in tables of significant economic intercepts. Tables clearly indicate that true widths will generally be narrower than those reported.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• See figures in main report.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• Resources have been reported at a range of cut-off grades, above a minimum suitable for open pit mining, and above a minimum suitable for underground mining.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• Extensive work in this area has been done and is reported separately. See the company website for significant announcements and milestones. Work that has been done includes; relogging of core, structural studies, alteration studies, geotechnical studies and preliminary metallurgical test works. The project has been subject to various geophysical studies including aeromagnetic, radiometric surveys and electromagnetic surveys over discrete targets.
Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• The mineralisation is open at depth and along strike. • Current estimates are restricted to those expected to be reasonable for open pit mining. Limited drilling below this depth (- 300m rl) shows widths and grades potentially suitable for underground extraction. • Exploration is on-going.

1.4 JORC TABLE 1 – SECTION 3 ESTIMATION AND REPORTING OF MINERAL RESOURCES

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	• The database is managed using Micromine Geobank software. Data is logged directly into an Excel spread sheet logging system with drop down field lists. Validation checks are written into the importing program

Criteria	JORC Code explanation	Commentary
	• *Data validation procedures used.*	ensures all data is of high quality. Digital assay data is obtained from the Laboratory, QA/QC checked and imported. Geobank exported to CSV TEXT and imported directly to the Micromine software used for the MRE. • The combined database was provided for the MRE. • Validation of the data import include checks for the following: • Duplicate drill hole or trench names, • One or more drill hole collar or trench coordinates missing in the collar file, • FROM or TO missing or absent in the assay file, • FROM > TO in the assay file, • Sample intervals overlap in the assay file, • First sample is not equal to 0 m in the assay file, • First depth is not equal to 0 m in the survey file, • Several downhole survey records exist for the same depth, • Azimuth is not between 0 and 360° in the survey file, • Dip is not between 0 and 90° in the survey file, • Azimuth or dip is missing in survey file, • Total depth of the holes is less than the depth of the last sample, • Total length of trenches is less than the total length of all samples. • Negative sample grades. • No logical errors were identified in the analytical data.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• Warren Potma, an employee of CSA Global, visited the Kharmagtai project, located in Mongolia, over 4 days from 18th to 22nd September 2018. • The site visit was required for the purposes of inspection, ground truthing, review of activities, and collection of information and data.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource*	• Geological data has been collected in a consistent manner that has allowed the development of geological models to support the Mineral Resource estimate. Copper and gold mineralisation is controlled by porphyry phases, oxidation zone, level of veining, breccia, country rocks and barren dykes.

Criteria	JORC Code explanation	Commentary
	estimation. • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	Full geological models of all major geological formations were developed for each deposit, and the block models were domained accordingly. Domaining of the deposit mineralisation was based on the current understanding of the deposits' geology. All major geological formations were wireframed by Xanadu geologists using Leapfrog software, including porphyry phases, country rocks, barren dyke, base of oxidation surface and breccia bodies. All geological formations were domained by the level of development of stockwork - <0.5% veining, 0.5-1.5% veining and >1.5% veining. All provided wireframe models were imported into Micromine software and validated by CSA Global. • Geological interpretation and wireframing were based on sampling results of drill holes and trenches, which were logged at 2 m intervals (average). • No alternative interpretations were adopted. • Lithological logging was mainly used to interpret and to wireframe the geological formations. Geological logging of veining was used to wireframe the stockwork and breccia domains.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• Altan Tolgoi: The strike length of the mineralised zone is about 1,200 m. Width is up to 800 m, no plunging, traced down dip to 1,030 m. Mineralisation is outcropped at the surface. • Tsagaan Sudal: The strike length of the mineralised zone is about 1,200 m. Width is up to 730 m, no plunging, traced down dip to 1,080 m. Mineralisation is outcropped at the surface. • Zesen Uul: The strike length of the mineralised zone is about 630 m. Width is up to 150 m with apparent plunging to SW at about 40 degrees. traced down dip to 420 m dipping 70 degrees to SE. Mineralisation is outcropped at the surface.
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation*	• The MRE is based on surface drilling and trenching results using Ordinary Kriging (OK) to inform 20 m x 20 m x 20 m blocks. The block model was constrained by wireframes modelled for the geological formations of the deposits and coded and domained by the

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
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from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.

The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.
The assumptions made regarding recovery of by-products.
Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).
In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.
Any assumptions behind modelling of selective mining units.
Any assumptions about correlation between variables.
Description of how the geological interpretation was used to control the resource estimates.
Discussion of basis for using or not using grade cutting or capping.
The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.

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<td>
level of oxidation and level of veining. The OK interpolation was carried out separately for each geological domain of each deposit. Hard boundaries were used between the interpreted geological domains. The drill hole and trench data were composited to a target length of 2 m based on the length analysis of raw intercepts. Top-cuts were estimated separately for gold and coper grades for each modelled domain and applied to sampled intervals before length compositing.
Interpolation parameters were as follows:
<table>
<tr><th>Interpolation method</th><th colspan="4">Ordinary Kriging</th></tr>
<tr><td>Search radii</td><td>Less or equal to 1/3 of semi-variogram ranges</td><td>Less or equal to 2/3 of semi-variogram ranges</td><td>Less of equal to semi-variogram ranges</td><td>Greater than semi-variogram ranges</td></tr>
<tr><td>Minimum no. of samples</td><td>3</td><td>3</td><td>3</td><td>1</td></tr>
<tr><td>Maximum no. of samples</td><td>16</td><td>16</td><td>16</td><td>16</td></tr>
<tr><td>Minimum no. of drillholes or trenches</td><td>2</td><td>2</td><td>2</td><td>1</td></tr>
</table>

Previous JORC-compliant Mineral Resources were estimated by Mining Associates, and the estimate was available for review.
No current mining is occurring at the Kharmagtai project.
No by-products are assumed at this stage. Estimated molybdenum and silver grades appear to be sub-economic to extract at this stage of the project evaluation.
Sulphur grades were interpolated into the models to establish their potential affect to metallurgical processing.
The optimal parent cell size was selected in the course of block modelling. The linear parent cell dimensions along X- and Y-axes were 20 m x 20 m. The vertical parent cell dimension was 20 m. Block grades were interpolated using parent cell estimation. Nominal drill spacing was about 40 m x 40 m at the central parts of the deposits.
It was assumed that a 20 m x 20 m x 20 m parent cell approximately reflects SMU for large scale open pit mining.
No assumptions about correlation between variables were made.
Geological interpretation was based on the results of detailed geological logging, which resulted in the development of wireframe models for all major geological formations for each deposit, which control copper and gold mineralisation (country rocks, porphyry phases, barren dyke. Logging of the level of veining and level of oxidation was used to

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</table>

Criteria	JORC Code explanation	Commentary
		develop wireframe models for the stockwork development (<0.5% veining, 0.5-1.5% veining and >1.5% veining) and also for breccia pipe and surface for the base of oxidation surface. The wireframe models for stockwork, breccia and oxidation were used to sub-domain the main geological formations of each deposit. All wireframe models were developed by Xanadu geologists using Leapfrog software. • Top-cutting was applied separately for each geological domain and sub-domain based on the results of the classical statistical analysis. • Grade estimation was validated using visual inspection of interpolated block grades vs. sample data, alternative interpolation methods and swath plots.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Moisture was not considered in the density assignment and all tonnage estimates are based on dry tonnes.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• A cut-off grade of 0.3% CuEq was used to report the Mineral Resources for open pit mining within the limits of ultimate undiscounted pit shell, and a cut-off of 0.5% CuEq was used to report the Mineral Resources for underground mining below the ultimate undiscounted pit shell. The copper equivalent (eCu) calculation represents the total metal value for each metal, multiplied by the conversion factor, summed and expressed in equivalent copper percentage with a metallurgical recovery factor applied. Copper equivalent (CuEq) grade values were calculated using the following formula: CuEq = Cu + Au * 0.62097 * 0.8235, Where: Cu - copper grade (%) Au - gold grade (g/t) 0.62097- conversion factor (gold to copper) 0.8235 - relative recovery of gold to copper (82.35%)

Criteria	JORC Code explanation	Commentary
		The copper equivalent formula was based on the following parameters (prices are in USD): • Copper price - 3.1 $/lb (or 6834 $/t) • Gold price - 1320 $/oz • Copper recovery - 85% • Gold recovery - 70% Relative recovery of gold to copper = 70% / 85% = 82.35%.
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• No mining factors have been applied to the in-situ grade estimates for mining dilution or loss as a result of the grade control or mining process. The deposit is amenable to large scale bulk mining. The Mineral Resource is reported above and outside of an optimised ultimate pit shell (Lerch Grossman algorithm), mineralisation below the pit shell is reported at a higher cut-off to reflect the increased costs associated with block cave underground mining.
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	• No metallurgical factors have been applied to the in-situ grade estimates. Metallurgical recoveries were used when copper equivalent grades were calculated in the model. The applied recoveries were 85% for copper and 70% for gold. Relative gold to copper recovery was 82%.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation.*	• An environmental baseline study was completed in 2003 by Eco Trade Co. Ltd. of Mongolia in cooperation with Sustainability Pty Ltd of Australia. The baseline study report was produced to meet the requirements for screening under the Mongolian Environmental Impact Assessment (EIA) Procedures administered

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td>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.</td><td>by the Mongolian Ministry for Nature and Environment (MNE).</td></tr>
<tr><td>Bulk density</td><td>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.
The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.
Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</td><td>A total of 4428 measurements for bulk density are recorded in the database, all of which were determined by the water immersion method.
The average density of all samples is approximately 2.75 t/m^3. In detail there are some differences in density between different rock types. Therefore, since the model includes all major geological domains, density values were applied separately for each domain:
<table>
<tr><th>Deposit</th><th>Domain</th><th>Density, t/m3</th></tr>
<tr><td rowspan="5">TS</td><td>OXIDE ZONE</td><td>2.65</td></tr>
<tr><td>CRD</td><td>2.76</td></tr>
<tr><td>CRS</td><td>2.74</td></tr>
<tr><td>P2</td><td>2.78</td></tr>
<tr><td>P5</td><td>2.80</td></tr>
<tr><td rowspan="7">AT</td><td>Breccia</td><td>2.78</td></tr>
<tr><td>OXIDE ZONE</td><td>2.65</td></tr>
<tr><td>CR</td><td>2.73</td></tr>
<tr><td>P1</td><td>2.78</td></tr>
<tr><td>P2</td><td>2.78</td></tr>
<tr><td>P3</td><td>2.77</td></tr>
<tr><td>TAND</td><td>2.76</td></tr>
<tr><td rowspan="5">ZU</td><td>OXIDE ZONE</td><td>2.65</td></tr>
<tr><td>CR</td><td>2.71</td></tr>
<tr><td>P1</td><td>2.81</td></tr>
<tr><td>P2</td><td>2.76</td></tr>
<tr><td>P3</td><td>2.76</td></tr>
</table>
Average bulk density values were applied for each geological domain, though there could be variations in density values due to presence of sulphides or level of alteration.</td></tr>
<tr><td>Classification</td><td>The basis for the classification of the Mineral Resources into varying confidence categories.
Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</td><td>The Mineral Resource has been classified based on the guidelines specified in the JORC Code. The classification level is based upon an assessment of geological understanding of the deposit, geological and mineralization continuity, drill hole spacing, QC results, search and interpolation parameters and an analysis of available density information.
The following approach was adopted:</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
	• *Whether the result appropriately reflects the Competent Person's view of the deposit.*	o Measured Resources: Not reported. o Indicated Resources: It was decided that Indicated Mineral Resources be assigned to blocks which were explored with the drill density not exceeding approximately 65 m x 65 m with at least two mineralization intersections on exploration lines. Geological structures are relatively well understood and interpreted. o Inferred Resources: Inferred Mineral Resources are model blocks lying outside the Indicated wireframes, which still display reasonable strike continuity and down dip extension, based on the current drill hole and trench intersections. • Data quality, grade continuity, structural continuity and drill spacing were assessed by CSA Global to form an opinion regarding resource confidence. • The classification reflects the Competent Person's view of the deposit.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• The Mineral Resource block model was peer reviewed internally by a Principal Resource Geologist employed by CSA Global and the conclusion was made that the procedures used to estimate and classify the Mineral Resource are appropriate.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the*	• Industry standard modelling techniques were used, including but not limited to: – Classical statistical analysis, – Interpretation and wireframing of main geological formations, – Top-cutting and interval compositing, – Domaining of the model using level of logging veining, breccia and zone of oxidation, – Geostatistical analysis, – Block modelling and grade interpolation techniques, – Model classification, validation and reporting, The relative accuracy of the estimate is reflected in the classification of the deposit. • The estimate is related to the global estimate of the deposit suitable for subsequent PFS or further exploration at the deposit. • No historical production data is available for

Criteria	JORC Code explanation	Commentary
	procedures used. • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	comparison with the MRE. • The Mineral Resource accuracy is communicated through the classification assigned to various parts of the deposit.

1.5 JORC TABLE 1 – SECTION 4 ESTIMATION AND REPORTING OF ORE RESERVES

Ore Reserves are not reported so this is not applicable to this report.