

ASX Announcement

21 March 2016

## Leigh Creek Magnesite - Project Study

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### Highlights

- The Study examines possible open pit mining and processing options and provides a strong case for undertaking a bulk trial as a prerequisite to firming up mining and processing plans.
  - Subject to satisfactory completion of the bulk trial work, the Study has highlighted the potential for a simple open pit mining operation that assumes the trucking of magnesite to an off-site calcination plant.
  - Test work to date indicates that the Project may be able to produce both caustic calcined magnesia and dead burn magnesia products.
  - The Study has only looked at the potential of the Mt Hutton deposit and not all of the known deposits in the project area, suggesting that potential exists to increase the scale and life of the Project.
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Archer Exploration Limited (ASX: "AXE") is pleased to announce that it has completed a Project Study (**Study**) on the magnesite deposit at the 100% owned Mount Hutton Magnesite Project (**Project**). The Project is part of the larger Leigh Creek Magnesite Project, located approximately 20 kilometres northwest of Leigh Creek Township, South Australia.

The Study provides strong impetus for the Project and Archer will use it as a basis for further evaluation towards potential development and discussions with third parties in seeking access to rail, calciners and associated infrastructure.

### Project Study

It should be noted that the term "Project Study" is not a technical term as used in the JORC Code 2012. The Project Study is an internal reference to a study that was prepared by Archer for project guidance purposes only and is based on technical and economic assessments of a low-confidence level. Due to this low confidence level it is not considered appropriate to report production targets or financial forecasts derived from production targets.

Investors are advised that the results of the Study do not establish the economic viability or definite value of the Project. Investors should note that for the Company to establish

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economic viability of its Project, the Company will need to establish sufficient Mineral Resources and Mineral Reserves and sufficiently consider mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and government factors.

This Study examines the possible mining and processing options and their potential economic benefit in order for Archer to optimise planning for the next stage of Project development.

Capital expenditure and operating cost estimates used in the Study were derived from estimates provided by contractors, service providers and other consultants.

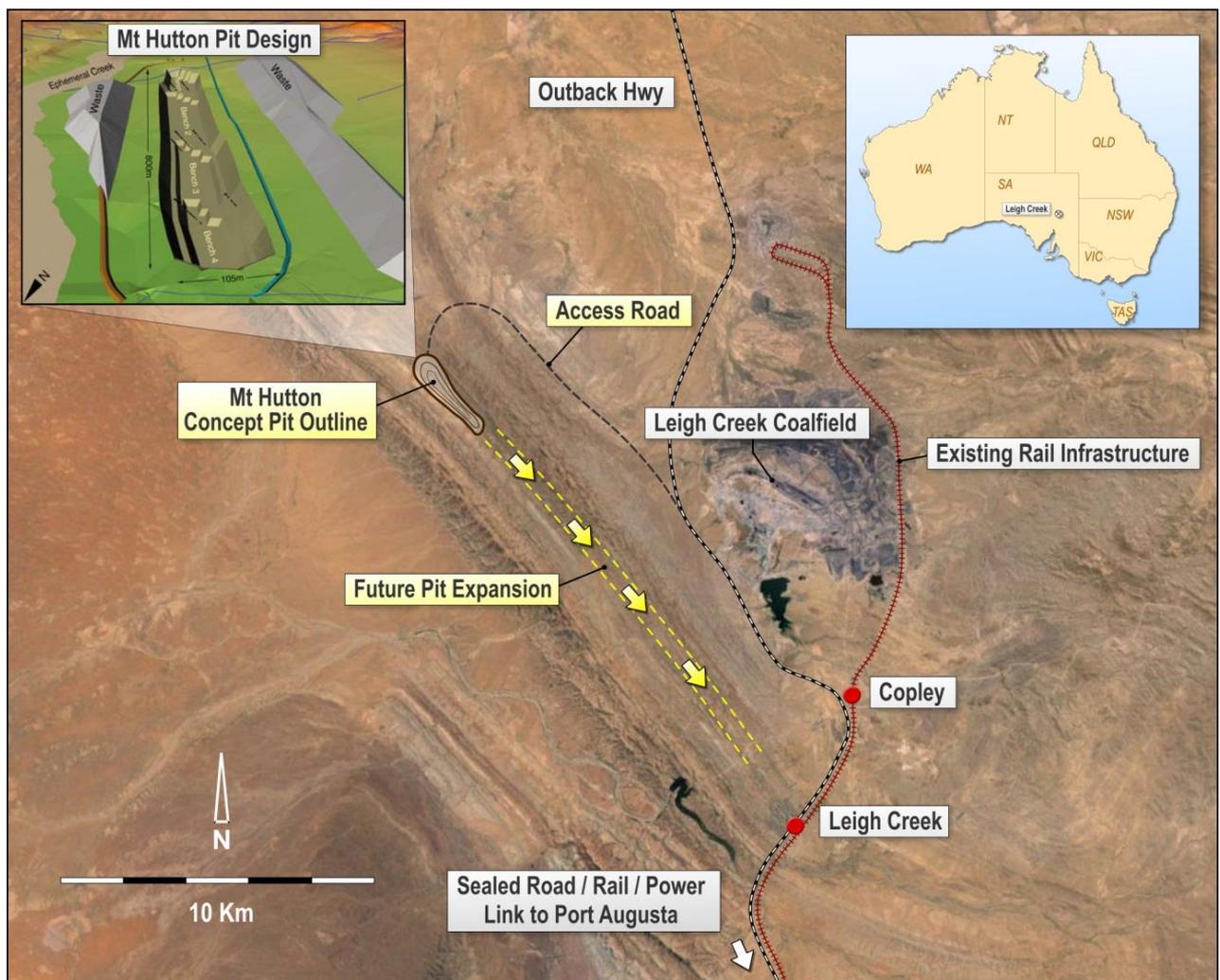


Figure 1: Project conceptual development layout

## Processing Options

The Leigh Creek Magnesite Project is well known with several companies having completed historical studies to develop the project, with the most recent being SAMAG in early 2000's. These previous studies were based on the construction of a stand-alone processing facility to make magnesia products, or in the case of SAMAG for the manufacture of magnesium metal. Archer's proposal is not to build a stand-alone processing facility (approximate cost

\$80 - \$120 million) or to make magnesium metal but to use third party kilns and furnaces to make caustic calcined magnesia (**CCM**) and dead burn magnesia (**DBM**) products.

There is underutilised infrastructure in the vicinity of the Project and elsewhere in South Australia that may be available to Archer. The Study is based on a simple processing scenario of contract mining at Mount Hutton and then hauling magnesite off-site to pre-existing plants for processing.

### Mine Development Model

The uppermost 17 magnesite beds at Mt Hutton have width and excellent continuity with many outcropping or covered by a shallow layer of topsoil. The Myrtle Springs mine, located approximately 3km along strike from Mt Hutton, is a working open pit magnesite mine and the Study assumes that Mt Hutton will be mined in the same manner as Myrtle Springs. More detailed mine design work is required to determine whether terrace mining or the dumping of waste to stockpiles is the most cost effective mining method.

Samples from each of the magnesite beds have been analysed and it has been assumed that the first 9 beds will be mined in the first pass mining operation and that the remaining beds will be extracted on a second pass. However, more detailed mine design is required before the optimum mine sequencing can be determined.

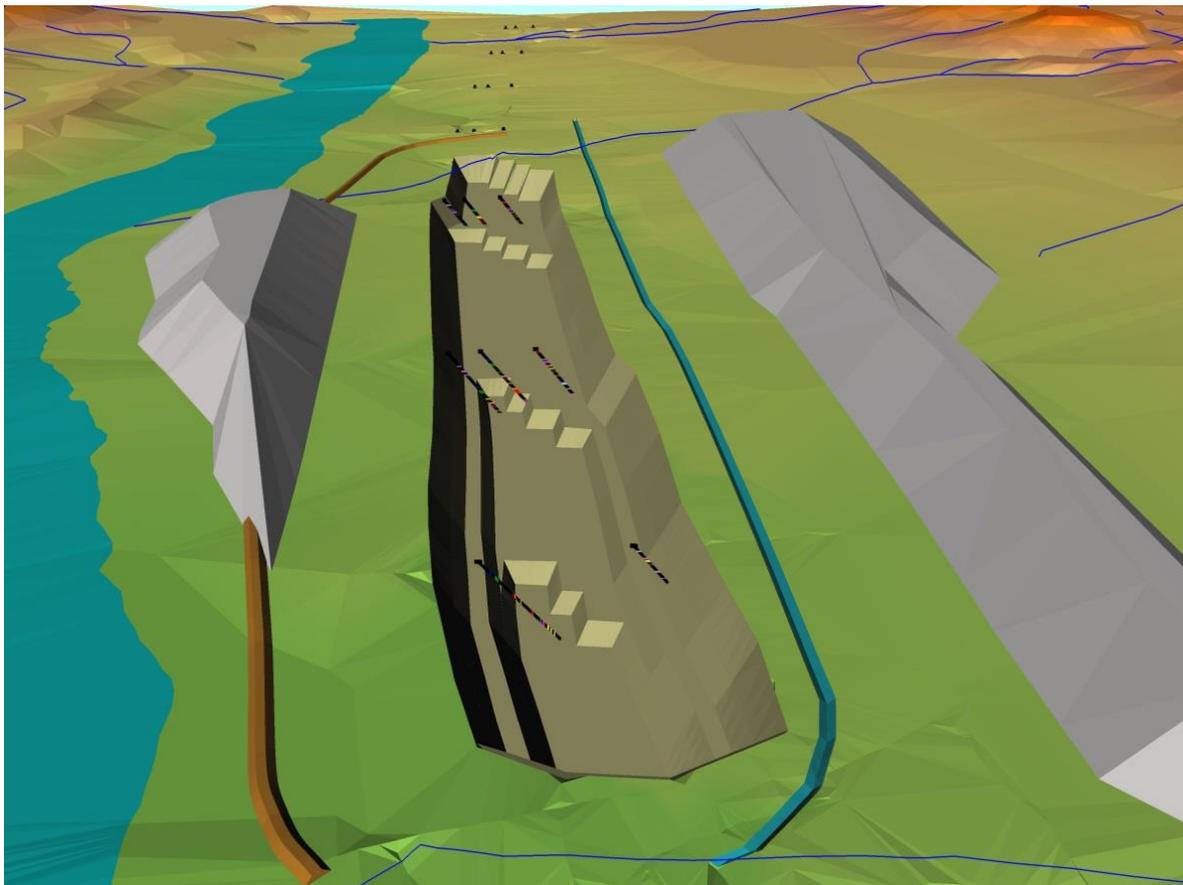


Figure 2: Conceptual Mt Hutton pit design

## Flow Sheet Design, Capital Expenditure and Operating Expenditure

The processing of magnesite is very simple – the magnesite is placed in a kiln or furnace and then heated to a range of temperatures to make different magnesia products. There is no grinding, flotation or other complicated mineral processing required for the Archer magnesite.

The Study assumes the use of contractors and third party processing for which Archer will be charged a unit rate (\$/tonne). Archer has been provided with indicative operating cost estimates by potential contractors and toll processors. The processing plant will be operated by the plant owners meaning that Archer will not need to build or operate any processing plant infrastructure.

The Study assumes the following:

- Open pit mining and crushing by mining contractors.
- Contractor haulage by rail or road to processing plant.
- Toll processing by third parties.
- Contractor haulage to port for export to customers.



Figure 3: Outcropping magnesite bed

Archer is undertaking detailed metallurgical testing to determine the temperatures required to produce CCM and DBM and the resultant chemical characteristics of the CCM and DBM product. A bulk trial (x000's of tonnes) of magnesite will be undertaken by toll processors later in 2016 and the resultant magnesia product sent to potential customers for testing.

### Potential cash flow

Subject to satisfactory completion of a bulk trial to be undertaken by toll processors later this year, the Study indicates robust economics with the Project economics influenced by the proportion of CCM and DBM produced (DBM sells for higher prices than CCM).

It is noted that the ability to produce mainly DBM could add significant value to the Project's economics - presenting a strong case for further test work, marketing and the signing of agreements for the toll processing of magnesite.

### Historic Mineral Resources

The Study has focused only on Mt Hutton which represents only part of the total Leigh Creek Magnesite Project Mineral Resource of 453Mt @ 41.4% MgO (refer to table 1 below). Therefore, potential exists to greatly increase the mine life and scale of the Project.

Deposit	Measured (Mt)	Indicated (Mt)	Inferred (Mt)	Total (Mt)	MgO (%)
Mount Hutton	18.3	72.0	53.0	143.3	42.7
Mount Playfair	0.0	21.0	23.0	44.0	42.5
Pug Hill	0.0	10.0	10.0	20.0	42.7
Termination Hill	4.0	5.0	20.0	29.0	42.8
Witchelina	23.7	94.0	99.0	216.7	40.0
<b>Total</b>	<b>46.0</b>	<b>202</b>	<b>205</b>	<b>453</b>	<b>41.4</b>

Table 1: Historic Leigh Creek Magnesite Project Mineral Resources

The mineral resources reported in table 1 above were reported by SAMAG in 2000 and were prepared in accordance with JORC Code 1999. It is important to note that:

- the estimates are historical estimates and are not reported in accordance with the JORC Code 2012;
- a competent person has not done sufficient work to classify the historical estimates as mineral resources or ore reserves in accordance with the JORC Code 2012; and
- it is uncertain that following evaluation and/or further exploration work that the historical estimates will be able to be reported as mineral resources or ore reserves in accordance with the JORC Code 2012.

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## Next Steps

Archer will work to finalise and execute agreements with mining contractors and toll processors as well as the gaining of all government and other approvals required to undertake the bulk trial later this year.

For further information please contact:

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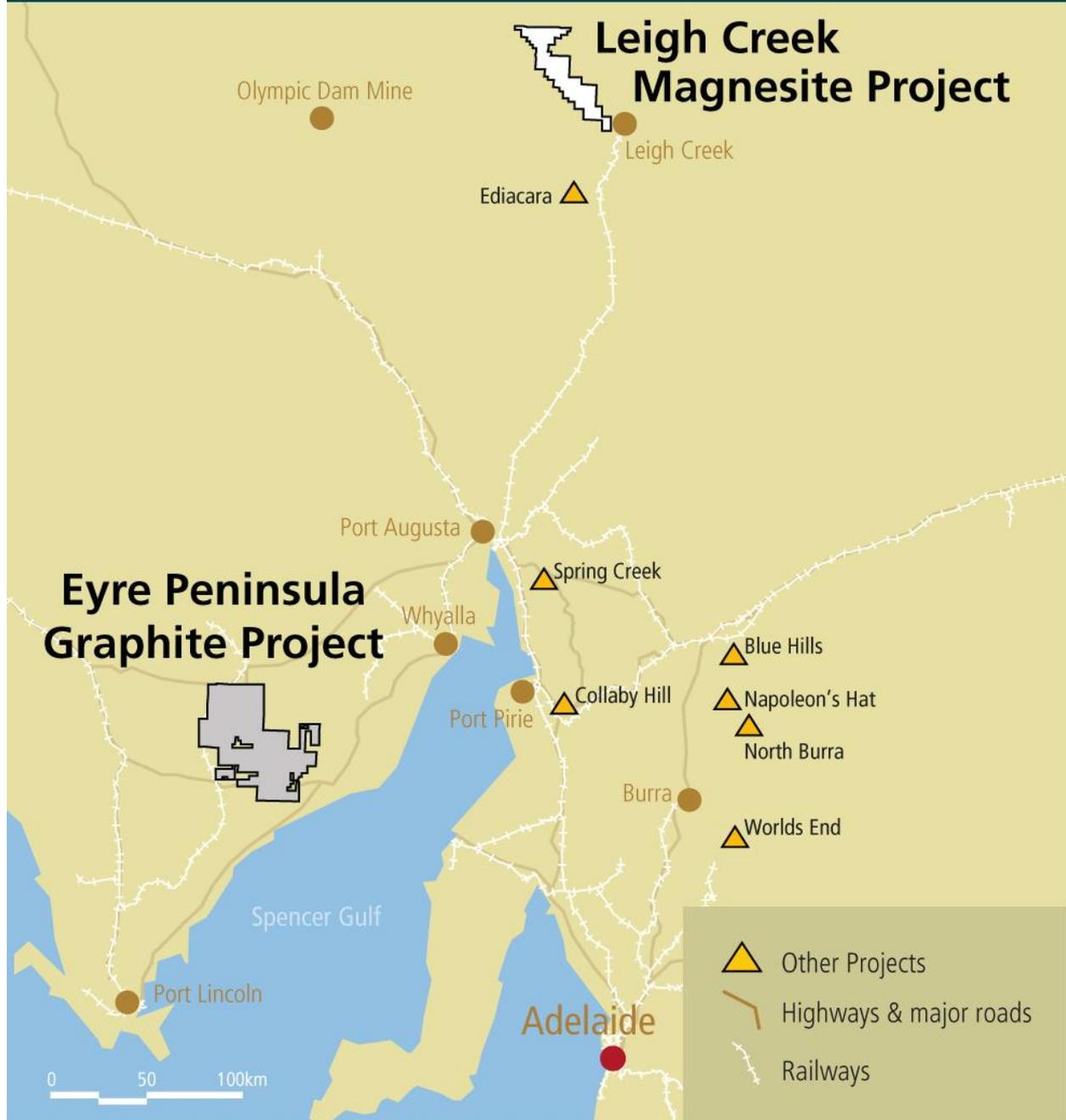
*The exploration results, historical estimates and exploration targets reported herein, insofar as they relate to mineralisation, are based on information compiled by Mr. Wade Bollenhagen, Exploration Manager of Archer Exploration Limited. Mr Bollenhagen confirms that the information relating to historical estimates is an accurate representation of the available data and studies for the Mount Hutton Magnesite Project.*

*Mr. Bollenhagen is a Member of the Australasian Institute of Mining and Metallurgy who has more than twenty years' experience in the field of activity being reported. Mr Bollenhagen has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity that he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" relating to the reporting of Exploration Results. Mr. Bollenhagen consents to the inclusion in the report of matters based on his information in the form and context in which it appears.*

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Archer Exploration Limited (ASX code AXE) has 100% ownership of 13 tenements all in South Australia covering more than 4,700 km<sup>2</sup>.

## Archer Projects



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## Appendix 1 – Reporting of historical estimates

Under ASX Listing Rule 5.12 (LR 5.12), an entity reporting historical estimates of mineralisation in relation to a material mining project must include all of the information shown in ASX Listing Rule 5.12. Archer considers the Leigh Creek Magnesite Project to be a material project and provides the following information regarding the Mt Hutton magnesite deposit, in accordance with LR 5.12:

1. *The source and date of the historical estimates (LR 5.12.1)*

The source is report “Economic Evaluation of Magnesite Deposits in the Northern Flinders Ranges”, September 1999. Compiled by R. Horn, L. Oowler, S. Biggins and R. Smidel. SAMAG Ltd.

2. *Whether the historical estimates use categories of mineralisation other than those defined in JORC Code 2012 and if so, an explanation of the differences (LR 5.12.2)*

Categories of Mineralisation reported are the same as the JORC Code 2012, where resources were classified and reported as either Inferred, Indicated or Measured as described in Table 1 of this ASX announcement.

3. *The relevance and materiality of the historical estimates to the entity (LR 5.12.3)*

Archer considers the historical estimates to be both material and relevant to the Company’s Mt Hutton project. The current Mt Hutton development plan is based mostly on the previous test work and studies completed by SAMAG.

4. *The reliability of the historical estimates, including by reference to any of the criteria in Table 1 of JORC Code 2012 which are relevant to understanding the reliability of the historical estimates (LR 5.12.4)*

The mineral resources were reported by SAMAG Ltd who undertook extensive and detailed drilling, metallurgical test work and trial mining at Mt Hutton. The mineral resources were also independently assessed and verified by numerous mining and geological consultants. In 2014 Archer purchased from Foyson Resources Ltd (formerly SAMAG) all of the data, reports, records, information and intellectual property in respect of the Leigh Creek Magnesite Project (including Mt Hutton).

5. *To the extent known, a summary of the work programs on which the historical estimates are based and a summary of the key assumptions, mining and processing parameters and methods used to prepare the historical estimates (LR 5.12.5)*

In October 1996, a pre-feasibility study into magnesium metal production from Leigh Creek magnesite was initiated between the South Australian Government and Hatch Associate Consultants Inc. Hatch delivered the study in March 1998.

PIRSA (Primary Industries and Resources, South Australia) also commissioned Kinhill in 1998 to produce a pre-feasibility report on the mining 200,000 tonnes per annum of magnesite from deposits near Leigh Creek. As a part of that project CSIRO carried out mineralogical and chemical studies of the magnesite ores.

The conclusion of these studies was that a high grade (45% MgO) magnesite resource, which could be used as the feed for a magnesium metal production plant could be cost effectively mined and transported to Port Augusta.

Work commenced after this on a granted exploration licence to develop the resources and reserves to underpin the future investigations.

The magnesite resources were based upon wide spaced (2,500m) diamond drill holes (size NQ2), with areas like Mt Hutton Central (a component of Mt Hutton Resource) being drilled to 250m spacing permitting the classification as Measured. Similarly at Witchelina close spaced drilling permitted the higher classification of the resource. No mining inputs were used in the estimation of historical resources.

6. *Any more recent estimates or data relevant to the reported mineralisation available to the entity (LR 5.12.6)*

No recent estimates or data relevant to the resources is available.

7. *The evaluation and/or exploration work that needs to be completed to verify the historical estimates as mineral resources or reserves in accordance with JORC Code 2012 (LR 5.12.7)*

A revision of historical drilling information will be completed, to ensure the integrity of the data, followed by another estimation of the resource, with a new classification to be assigned. The resource estimation may occur as an area by area re-estimation based upon possible mining priorities, (i.e. Mt Hutton Central followed by Witchelina, then other parts of the resource such as Mt Playfair, Termination Hill and Pug Hill and Mt Hutton South.

8. *The proposed timing of any evaluation and/or exploration work that the entity intends to undertake and a comment on how the entity intends to fund that work (LR 5.12.8)*

The Company intends to undertake further test work, exploration (excluding drilling), deposit evaluation and mining study activities over the next 6 – 12 months and this work will be funded from working capital.

9. *A cautionary statement proximate to, and with equal prominence as, the reported historical estimates (LR 5.12.9)*

Refer to cautionary statement at the bottom of Table 1 on page 5 of this ASX announcement.

10. *A statement by a named competent person or persons that the information in the market announcement provided under LR 5.12. to 5.12.7 is an accurate representation of the available data and studies for the material mining project (LR 5.12.10)*

Refer to competent person statement on page 6 of this ASX announcement.