Maiden Liontown East Mineral Resource

Highlights:

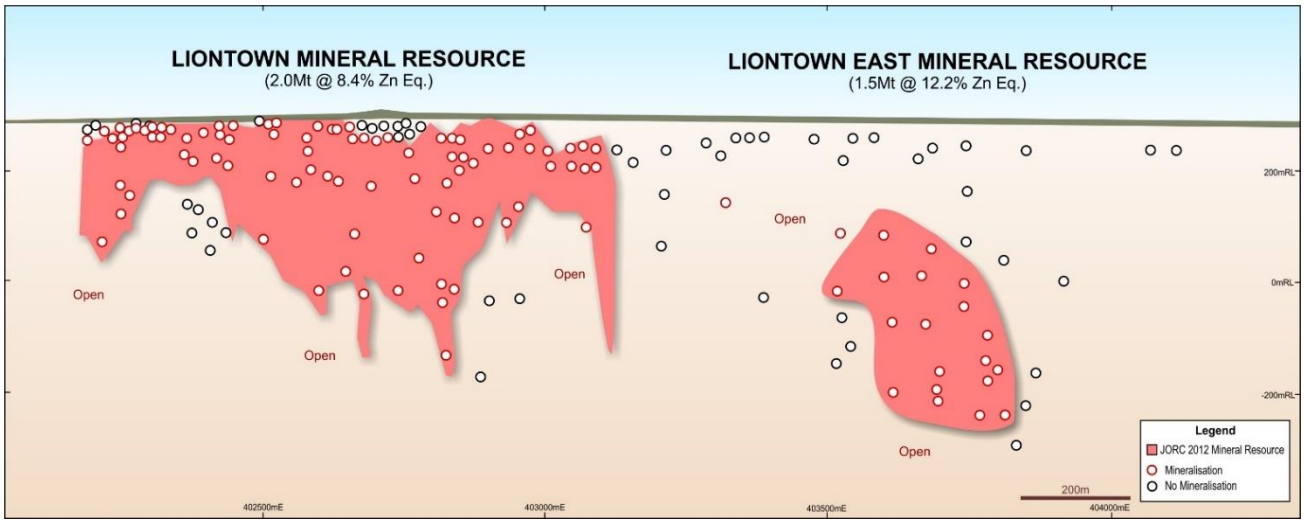
- **Maiden Liontown East Mineral Resource of 1.5 Mt @ 12.2 % Zinc Equivalent and Liontown Project Mineral Resource increases to 3.6Mt @ 10.0% Zinc Equivalent**
- **Thalanga Operations Mineral Resource increases by 27% to 7.1Mt @ 13.0% Zinc Equivalent**
- **Liontown and Liontown East are part of the same mineralised system –remains open along strike and depth**
- **Liontown Scoping Study to commence in 2H 2018 – next project in development pipeline after Waterloo**

Red River Resources Limited (ASX: RVR) ("Red River" or the "Company") is pleased to announce a maiden JORC 2012 Mineral Resource estimate for the Liontown East polymetallic massive sulphide deposit of 1.5 Mt @ 12.2 % Zinc Equivalent (refer to Table 1).

Table 1 Liontown East Mineral Resource (>5% Zn Eq.)

Resource Class	Tonnage (kt)	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
Measured	-	-	-	-	-	-	-
Indicated	-	-	-	-	-	-	-
Inferred	1,515	0.5	2.5	7.3	0.7	29	12.2
Total	**1,515**	**0.5**	**2.5**	**7.3**	**0.7**	**29**	**12.2**

Tonnages and grades are rounded. Discrepancies in totals may exist due to rounding.
Zinc equivalent (Zn Eq.) has been calculated using the metal selling prices, recoveries and other assumptions contained in Table 3 of this announcement. It is Red River's opinion that all elements included in the metal equivalent calculation have a reasonable potential to be recovered and sold.

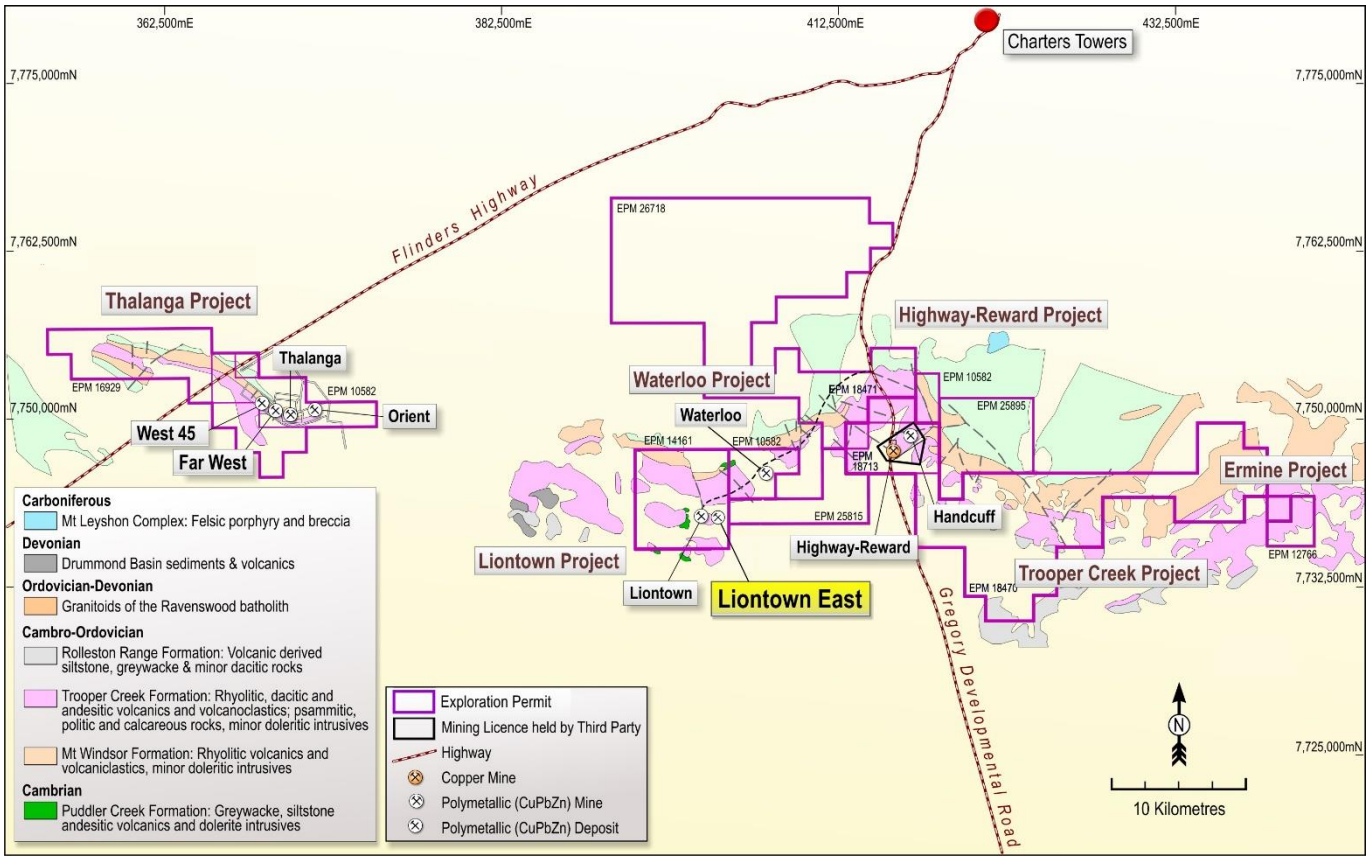


1. Liontown East Deposit

The Liontown East deposit is located approximately 1km from the Liontown deposit and is located on EPM 14161 (Figure 1). Liontown East was discovered in July 2016 by Red River, when the discovery hole (LTED01), was drilled to test the Liontown East coincident geochemical and geophysical target.

The discovery hole LTED01 when it intersected intervals of massive and semi massive sulphides from 452.7m depth (28 July 2016). Since then 37 holes have been completed in and around the deposit with the results successfully defining a mineralised envelope of 250 m in strike length bearing 075° and 480 m down plunge length at 60° to the south east.

Figure 1 Liontown East Location



2. Liontown East Mineral Resource Estimate

The maiden JORC 2012 compliant Mineral Resource estimate for the Liontown East deposit is as per Table 2 below. Blocks were constrained by removing all blocks <5% Zinc Equivalent (Zn Eq.), and all non-classified blocks in respect to resource category. The Zinc Equivalent (Zn Eq.) grade tonnage curve is also shown below.

Table 2 Liontown East Mineral Resource (>5% Zn Eq.)

Resource Class	Tonnage (kt)	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
Measured							
Indicated							
Inferred	1,515	0.5	2.5	7.3	0.7	29	12.2
Total	**1,515**	**0.5**	**2.5**	**7.3**	**0.7**	**29**	**12.2**

Tonnages and grades are rounded. Discrepancies in totals may exist due to rounding.
Zinc equivalent (Zn Eq.) has been calculated using the metal selling prices, recoveries and other assumptions contained in Table 3 of this announcement. It is Red River's opinion that all elements included in the metal equivalent calculation have a reasonable potential to be recovered and sold.

Figure 2 Liontown East Mineral Resource - Zn Eq. % Grade Tonnage Curve

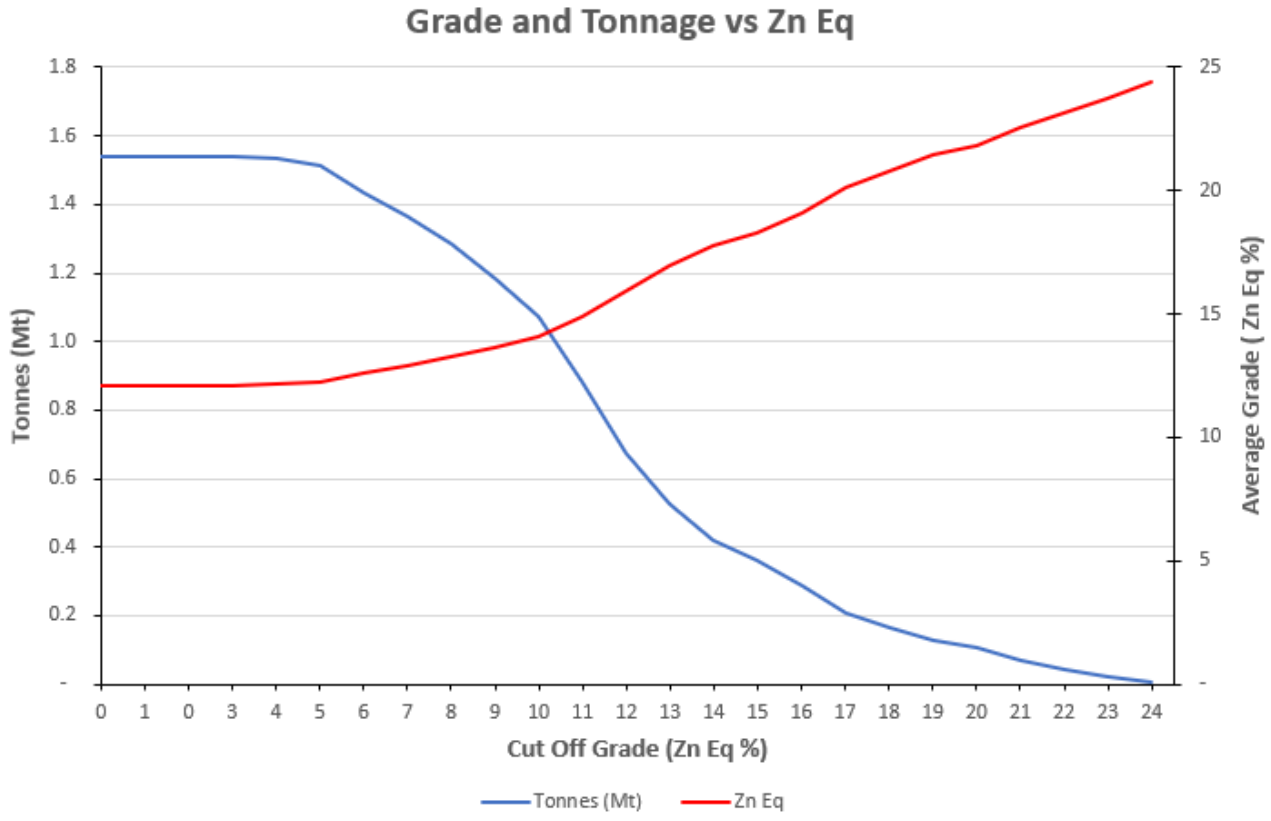
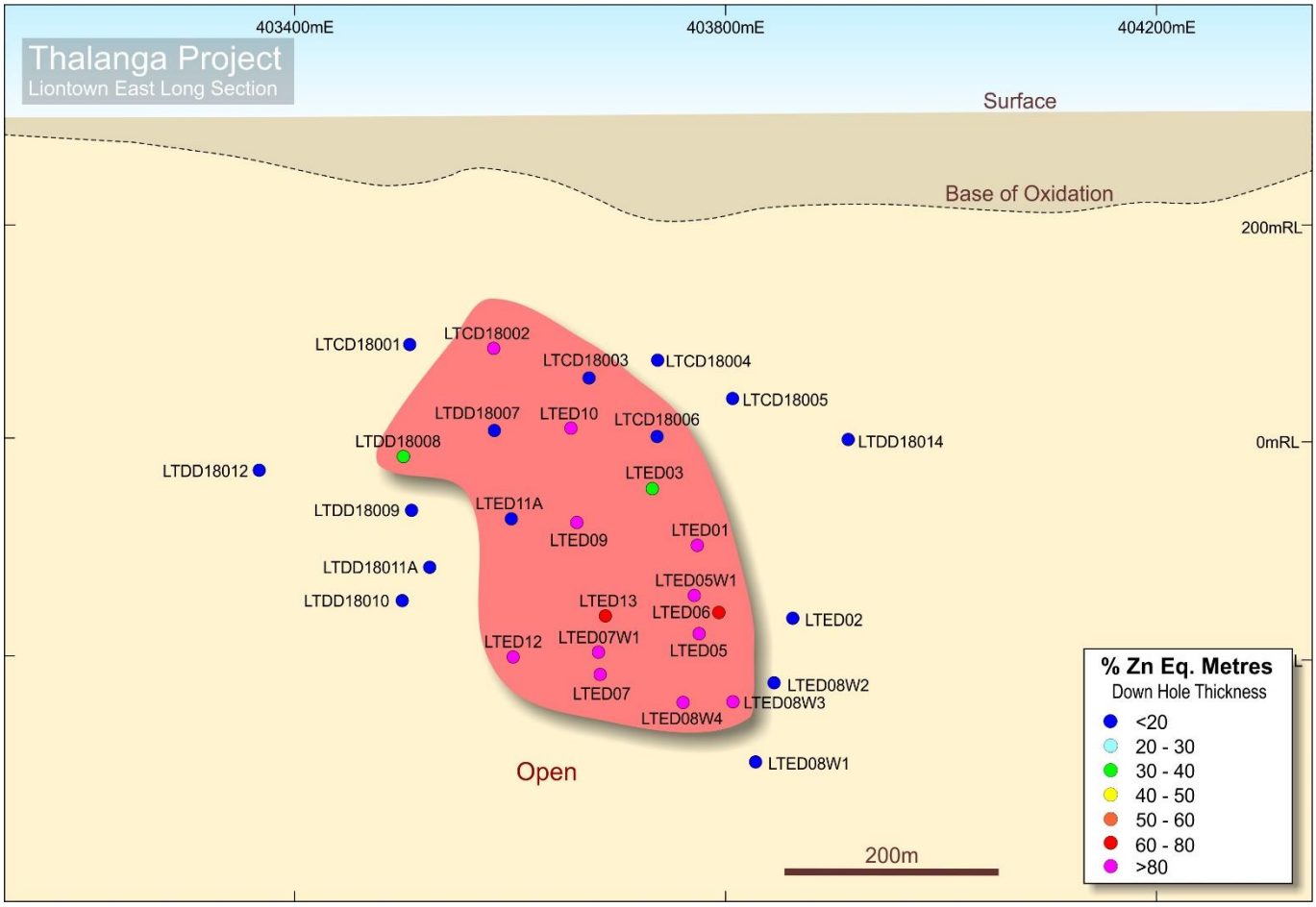


Figure 3 Liontown East Mineral Resource Long Section



Zinc Equivalent (Zn Eq.) calculation parameters are listed in Table 3. The metallurgical recoveries are derived from historical metallurgical recoveries from test work carried out on Liontown samples and the Thalanga deposit. The Liontown deposit is related to and of a similar style of mineralisation to Thalanga, and it is appropriate to apply similar recoveries. It is Red River's opinion that all elements included in the metal equivalent calculation have a reasonable potential to be recovered and sold. Please refer to the Appendices for further details on the Zinc Equivalent (Zn Eq.) calculation parameters.

Table 3 Zinc Equivalent Calculation Factors

Metal	Price	Unit	Recoveries	Zn Eq. Factors
Copper	US$3.00	US$/lb	80%	3.3
Lead	US$0.90	US$/lb	70%	0.9
Zinc	US$1.00	US$/lb	88%	1.0
Silver	US$17.00	US$/oz	65%	0.025
Gold	US$1,200	US$/oz	15%	0.5
FX Rate: A$0.85:US$1				

Geology and Geological Interpretation

The Liontown East deposit is of volcanogenic-hosted-massive-sulphide (VHMS) style and is hosted within Cambro-Ordovician marine volcanic and volcano-sedimentary sequences of the Mt Windsor Volcanic Sub-province. Liontown East demonstrates strong affinities with other well-known deposits in the region including the Liontown and Thalanga group deposits. Its proximity to the Liontown and similar position within the host sequence suggest contemporaneous deposition.

The main lens of mineralisation is contained between a fine-grained siltstone (hanging wall) and a thick package of rhyodacite pumice breccia (footwall). The mineralisation occurs as massive, banded and network stringer sulphides of sphalerite, pyrite, galena and chalcopyrite. Lenses of copper-gold dominated mineralisation occur within the footwall pumice breccia.

Sampling and sub-sampling techniques

Geological logging was carried out by company geologists applying industry standard practices. Reverse circulation samples were collected on a 1m interval and split using a rig-mounted cone splitter to collect samples of 3-5kg in size. Drill core was sampled to mineralised boundaries and sawn in half longitudinally while onsite with sample lengths targeting 1m and ranging from 0.2 to 1.5m. Samples were sent to Intertek Laboratories Townsville for analysis.

Drilling Techniques

Drilling was completed using Diamond and Reverse circulation methods. Most drilling passing through the defined resource area is of NQ2 or BQ size diamond core, one hole within the area is reverse circulation. A summary of drilling is detailed in Appendix One. These holes were utilised as part of the Liontown East Mineral Resource estimation process to either define or constrain the mineralized envelope. Samples from holes passing through the mineralized envelope were used in the estimation process, these intervals are shown in Appendix Two.

Classification Criteria

The resources have been reported above a 5% Zn Eq. cut-off a value considered appropriate for potential economic extraction (supported by current mining parameters at Red Rivers Thalanga operation) and have been classified as Inferred based on the demonstrated continuity and consistency of the mineralised intersections defined by the current drill spacing (generally 60-90m) and the likelihood of local variability on a scale below current drill spacing.

Material considered not sufficiently defined for Inferred classification includes lesser Zn Pb Cu stringer sulphide mineralisation of undetermined continuity below the footwall contact of the current resource and Cu Au mineralisation within the footwall pumice breccia. This material has not been included in the estimate. This Cu Au mineralisation has similarities to the Carrington Lode along strike at mined at the Liontown deposit. Further drilling at closer spacing may prove sufficient continuity for resource estimation in these areas.

Sample Analysis Method

Drill core and reverse circulation samples were sent to Intertek Genalysis laboratories Townsville. Samples were crushed to sub 6mm, split and pulverised to sub 75µm in order to produce a representative sub-sample for analysis. Analysis consisted of a four acid digest and Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES) for the following elements; Ag, As, Ba, Bi, Ca, Cu, Fe, K, Mg, Mn, Na, Pb, S, Sb, Ti, Zn, & Zr. Samples were assayed for Au using a 25g Fire Assay technique. Standards were submitted at an overall rate of 1 in 20 with greater than 90% of results for standards returning within 3 standard deviations of certified values for Zn, Pb, Cu and Ag. 90% of ore grade standards returned within 2 standard deviations of their certified value.

Estimation Methodology

Geological and geochemical interpretation including sectional assessment of hanging wall and footwall strata was undertaken and 3D wireframes of the mineralised envelope were created. The mineralised envelope defined by continuous massive, semi massive and network stringer sulphide mineralisation approximates a 5% Zn Eq. value.

The Mineral Resource estimate was undertaken using inverse distance estimation methods and 3D estimation software. 3D wireframes of the mineralised envelope were filled with model blocks of appropriate size. Drill samples were top capped where appropriate to reduce the impact of extreme high-grade samples. Samples were composited to 1 m to reduce sample size bias. Estimations of copper, zinc, lead, silver, gold iron and barium grades into the model blocks was undertaken using sample limitations and octant requirements to reduce sample distribution bias. Multiple increasing search distances for sample selection was used. The mineralised envelope was considered a hard boundary for estimation purposes.

Cut-Off Grade Selection

The Mineral Resources have been reported above a 5% Zn Eq. cut-off into Inferred, Indicated and Measured categories. The basis for cut-off grade is that a 5% Zn Eq. grade is assessed as the lower cut-off for definition of potential economic mineralization using the proposed underground mining methodology.

Mining and Metallurgical Methods and Parameters, and Other Material Modifying Factors

The bulk density of the Mineral Resource was calculated into blocks from content estimates of dense minerals based on the estimated block grades of Zn, Pb, Cu, Fe and Ba and measured gangue densities. The density calculation incorporates void and porosity influences through an assigned gangue density.

The density calculation was validated by a regression assessment against empirical test work on the Liontown East core following the Archimedes principle. The densities are reported on a dry basis.

The Mineral Resource has been estimated with the intent of being mined by selective mining methods such as underground drive development and long hole stoping techniques. For conversion to Ore Reserve, material that is sub 2 metre thick will require a higher cut off to accommodate the additional minimum mining width dilution. Approximately 5% of the reported resource is of sub 2 metre thickness, no exclusion of this material has been made.

The assumed processing is via crushing milling and conventional flotation to produce concentrates containing Zn, Pb, Ag, Cu and Au. Metallurgical test work will be required to confirm the processing metrics of the ore material. Ore sorting may be applicable. The ore would likely be processed at the existing Thalanga processing facility.

3. Liontown East Drilling Data

Red River has completed a number of drill holes within the project area since the discovery hole was drilled in July 2016, and a summary of this drilling is detailed in Appendix One. These holes (Table 4) were utilised as part of the Liontown East Mineral Resource estimation process to either define or constrain the mineralized envelope. Samples from holes passing through the mineralized envelope were used in the estimation process, these intervals are shown in Appendix Two

Table 4 Liontown East Drilling Summary

Hole ID	Total Drilled (m)	Precollar (m)	RC (m)	Diamond (m)
LTCD18002	276.00	100.40	175.60	
LTCD18003	318.70	94.40	169.60	54.70
LTCD18006	399.40	94.40	163.60	141.40
LTDD18007	453.90	-		453.90
LTDD18008	459.80	-		459.80
LTED01	576.00	44.80		531.20
LTED03	474.60	101.50		373.10
LTED05	530.70	110.80		419.90
LTED05W1	445.75			445.75
LTED06	727.20	147.55		579.65
LTED07	600.40	99.10		501.30
LTED07W1	582.40	-		582.40
LTED03	474.60	78.50		396.10
LTED04	162.75	84.20		78.55
LTED09	508.00	-		508.00
LTED10	453.00	129.10		323.90
LTED11A	501.50	-		501.50
LTED12	592.10	-		592.10
LTED13	574.70			574.70
Total	9111.50	1084.75	508.80	7517.95
W prefix indicates a diamond wedge hole				

4. Liontown Project Mineral Resource

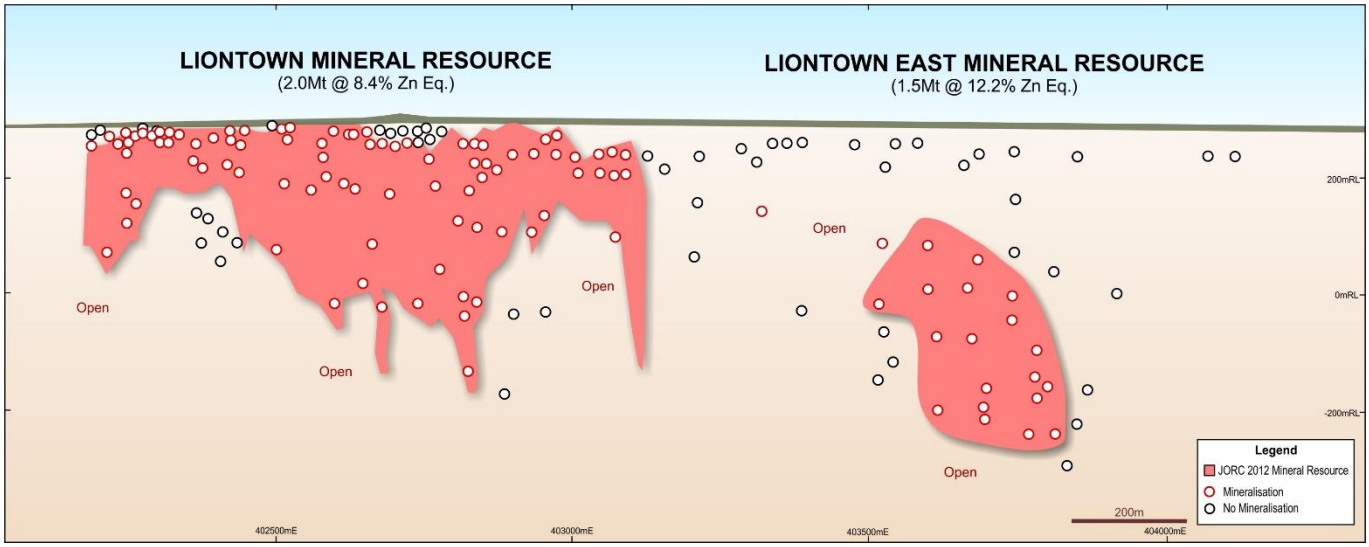
The combined Liontown Project Mineral Resource (Liontown and Liontown East) now stands at 3.6Mt @ 10.0% Zinc Equivalent.

Table 5 Liontown Project Mineral Resource

Deposit	Resource Class	Tonnage (kt)	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)
Liontown	Measured							
	Indicated	367	0.5	1.8	4.6	1.3	21	8.3
	Inferred	1,671	0.5	1.5	4.6	0.8	26	8.4
	Subtotal	**2,038**	**0.5**	**1.6**	**4.6**	**0.8**	**25**	**8.4**
Liontown East	Measured							
	Indicated							
	Inferred	1,515	0.5	2.5	7.3	0.7	29	12.2
	Subtotal	1,515	0.5	2.5	7.3	0.7	29	12.2
Combined	Measured							
	Indicated	367	0.5	1.8	4.6	1.3	21	8.3
	Inferred	3,185	0.5	2.0	5.9	0.7	28	10.2
	Total	**3,553**	**0.5**	**2.0**	**5.7**	**0.8**	**27**	**10.0**

Tonnages and grades are rounded. Discrepancies in totals may exist due to rounding.
Source: Liontown Deposit JORC 2012 Resource Estimate (ASX Release, 24 June 2015), Maiden Liontown East Mineral Resource (ASX Release, 18 July 2018)
Zinc equivalent (Zn Eq.) has been calculated using the metal selling prices, recoveries and other assumptions contained in Appendices of this announcement. It is Red River's opinion that all elements included in the metal equivalent calculation have a reasonable potential to be recovered and sold.

Figure 4 Liontown Project Mineral Resource Long Section



5. Resource Upside and Exploration Potential

The primary targets to increase the Liontown East (and Liontown Project) Mineral Resource are as follows:

- **Liontown East Down Dip Extension**

The deposit is open at depth below the LTED07, LTED08W4 and LTEW08W3 intersections.

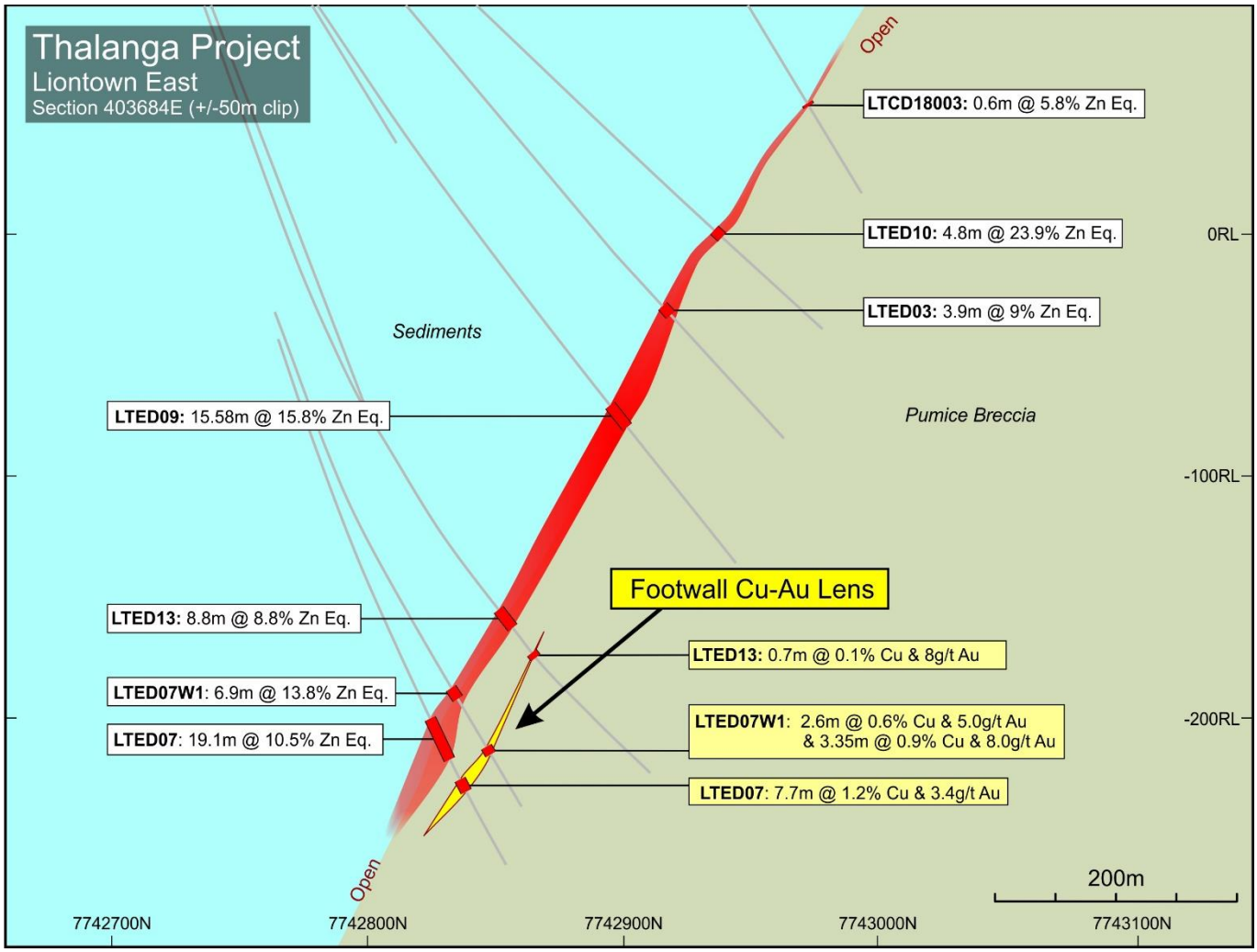
- **Liontown East Footwall Lenses**

Footwall mineralisation immediately adjacent to the current main lens intercepted in holes LTED01 and LTED05W1 has not been included in the Mineral Resource as current drill spacing is too broad to confirm continuity. Infill drilling will target these areas for definition and likely inclusion in future resource assessments.

- **Liontown East Foot Wall Copper Gold Lenses**

Footwall mineralisation within the Pumice Breccia of chalcopyrite dominated stringer sulphides with positive gold results have been previously been reported in exploration results. These include LTED07 containing 7.7m @ 1.2% Cu and 3.4g/t Au from 557m (refer to RVR ASX Release 22 May 2017). These areas hold good potential for definition as resources following additional drilling to assist definition.

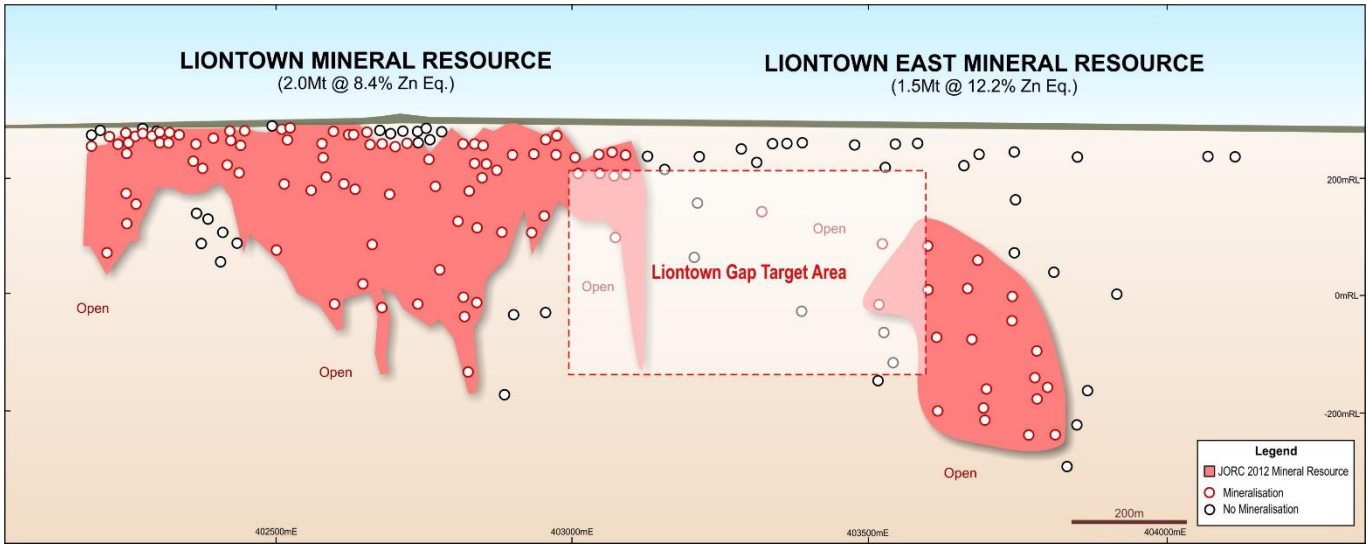
Figure 5 Liontown East Footwall Copper Gold Lenses



- **Additional repetitions of economic lenses between Liontown and Liontown East will be targeted.**

Red River has identified the potential for the known mineralisation at Liontown and Liontown East to extend into the Liontown Gap Target Area. Red River intends to carry out further drilling in this area to seeking to close the gap between the Liontown Mineral Resource and Liontown East Mineral Resource.

Figure 6 Liontown Gap Target Area



6. Thalanga Operation Mineral Resource

The Thalanga Operations Mineral Resource has increased to 7.1Mt @ 13.0% Zinc Equivalent, an increase of 27% (tonnes) and 26% (zinc equivalent contained metal).

THALANGA OPERATION MINERAL RESOURCE								
	Classification	Tonnage (kt)	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq. (%)[7]
WEST 45[1]	Measured	210	0.8	5.5	11.9	0.5	122	22.4
	Indicated	312	0.4	2.7	6.7	0.2	45	11.7
	Inferred	60	0.5	2.4	5.0	0.3	51	10.0
	Total	**582**	**0.6**	**3.7**	**8.4**	**0.3**	**73**	**15.4**
FAR WEST[2]	Measured	52	1.4	1.3	5.3	0.0	32	12.0
	Indicated	1,491	1.7	2.2	6.6	0.2	61	15.7
	Inferred	150	1.4	2.3	6.5	0.1	53	14.6
	Total	**1,693**	**1.6**	**2.1**	**6.5**	**0.2**	**59**	**15.5**
ORIENT[3]	Measured	-	-	-	-	-	-	-
	Indicated	496	0.9	1.8	7.7	0.2	44	13.4
	Inferred	44	0.8	1.8	10.9	0.2	46	16.2
	Total	**540**	**0.9**	**1.8**	**7.9**	**0.2**	**44**	**13.6**
WATERLOO[4]	Measured	-	-	-	-	-	-	-
	Indicated	406	2.7	2.1	13.4	1.4	68	24.6
	Inferred	301	0.9	0.9	7.9	0.4	27	11.8
	Total	**707**	**1.9**	**1.6**	**11.0**	**0.9**	**50**	**19.1**
LIONTOWN[5]	Measured	-	-	-	-	-	-	-
	Indicated	367	0.5	1.8	4.6	1.3	21	8.3
	Inferred	1,671	0.5	1.5	4.6	0.8	26	8.4
	Total	**2,038**	**0.5**	**1.6**	**4.6**	**0.8**	**25**	**8.4**
LIONTOWN EAST[6]	Measured	-	-	-	-	-	-	-
	Indicated	-	-	-	-	-	-	-
	Inferred	1,515	0.5	2.5	7.3	0.7	29	12.2
	Total	**1,515**	**0.5**	**2.5**	**7.3**	**0.7**	**29**	**12.2**
THALANGA OPERATION	Measured	262	0.9	4.7	10.6	0.4	104	20.3
	Indicated	3,072	1.4	2.1	7.4	0.5	53	15.2
	Inferred	3,741	0.6	1.9	6.1	0.7	29	10.6
	Total	**7,075**	**0.9**	**2.1**	**6.8**	**0.6**	**42**	**13.0**

(1) Refer to ASX Announcement dated 20 December 2017 "Red River extends mine life at West 45"
(2) Refer to ASX Announcement dated 21 November 2017 "Far West Reserve and Resource Update Extends Mine Life" and supplementary release dated 4 December 2017
(3) Refer to ASX Announcement dated 11 February 2015 "Thalanga Project – Updated Mineral Resource Estimate"
(4) Refer to ASX Announcement dated 24 April 2015 "Waterloo Deposit – Updated Mineral Resource Estimate"
(5) Refer to ASX Announcement dated 24 June 2015 "Liontown Deposit JORC 2012 Resource Estimate"
(6) Refer to ASX Announcement dated 16 July 2018 "Maiden Liontown East Mineral Resource"
(7) Zinc equivalent (Zn Eq.) has been calculated using the metal selling prices, recoveries and other assumptions contained pages 15 & 16 of this presentation.

It is Red River's opinion that all elements included in the metal equivalent calculation have a reasonable potential to be recovered and sold.
Table subject to rounding errors, Please refer to Competent Persons Statements for appropriate Competent Persons Statement

7. Forward Program

Red River is planning to undertake further drilling at the Liontown Project to increase Mineral Resources, convert Inferred Mineral Resources into Indicated Mineral Resources and to test the Liontown Gap Target Area.

Red River will also commence a Liontown Project Scoping Study to identify the likely development pathway (open pit and/or underground) for the Liontown Project.

About Red River Resources (ASX: RVR)

RVR is the leading ASX base metal producer, with its key asset being the high quality Thalanga Operation in Central Queensland. RVR commenced copper, lead and zinc concentrate production at the Thalanga Operation in September 2017 and RVR is focused on maximising returns from the Operation by increasing plant throughput and extending mine life through increasing Mineral Resources and Ore Reserves at deposits currently in the mine plan (West 45, Far West and Waterloo), by potentially converting Mineral Resources into Ore Reserves at Liontown and Orient and by continuing to aggressively explore our growing pipeline of high quality targets within the surrounding area.

On behalf of the Board,

Mel Palancian
Managing Director
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COMPETENT PERSON STATEMENT

Liontown East Mineral Resource

The information in this report that relates to the estimation and reporting of the Liontown East Mineral Resource is based on and fairly represents, information and supporting documentation compiled by Mr Peter Carolan who is a Member of The Australasian Institute of Mining and Metallurgy and a full time employee of Red River Resources Ltd.

Mr Carolan has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which 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'.

Mr Carolan consents to the inclusion in the report of the matters based on the information in the form and context in which it appears. The information in this report that relates to database compilation, geological interpretation and mineralisation wireframing, project parameters and costs and overall supervision and direction of the Liontown East Mineral Resource estimation is based on and fairly represents, information and supporting documentation compiled under the overall supervision and direction of Mr Carolan.

Far West, West 45, Orient, Waterloo and Liontown Mineral Resources

The information in this report that relates to the estimation and reporting of the Far West, West 45, Orient, Waterloo and Liontown Mineral Resources are based on and fairly represents, information and supporting documentation compiled by Mr Stuart Hutchin who is a Member of The Australasian Institute of Mining and Metallurgy, Member of the Australian Institute of Geoscientists and a full time employee of Mining One Consultants Pty Ltd.

Mr Hutchin has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which 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'.

Mr Hutchin consents to the inclusion in the report of the matters based on the information in the form and context in which it appears. The information in this report that relates to database compilation, geological interpretation and mineralisation wireframing, project parameters and costs and overall supervision and direction of the Liontown Mineral Resource estimation is based on and fairly represents, information and supporting documentation compiled under the overall supervision and direction of Mr Hutchin.

Zinc Equivalent Calculation

The net smelter return zinc equivalent (Zn Eq.) calculation adjusts individual grades for all metals included in the metal equivalent calculation applying the following modifying factors: metallurgical recoveries, payability factors (concentrate treatment charges, refining charges, metal payment terms, net smelter return royalties and logistic costs) and metal prices in generating a zinc equivalent value for copper (Cu), lead (Pb), zinc (Zn), gold (Au) and silver (Ag).

Red River has selected to report on a zinc equivalent basis, as zinc is the metal that contributes the most to the net smelter return zinc equivalent (Zn Eq.) calculation. It is the view of Red River Resources that all the metals used in the Zn Eq. formula are expected to be recovered and sold.

Where:

Metallurgical Recoveries are derived from historical metallurgical recoveries from test work carried out the Liontown deposit. The Liontown East deposit is related to and of a similar style of mineralisation to the Liontown Deposit and it is appropriate to apply similar recoveries. The Metallurgical Recovery for each metal is shown below in Table 1.

Metal Prices and Foreign Exchange assumptions are set as per internal Red River price forecasts and are shown below in Table 1.

Table 1 Metallurgical Recoveries and Metal Prices

			West 45, Thalanga Far West, Orient, Liontown & Liontown East (Fresh Resource)	Waterloo (Fresh Resource)	Waterloo (Transition Resource)
Metal	Units	LT Price	Recoveries		
Copper	US$/lb	US$3.00	80%	80%	58%
Lead	US$/lb	US$0.90	70%	70%	0%
Zinc	US$/lb	US$1.00	88%	88%	76%
Gold	US$/oz	US$1,200	15%	50%	30%
Silver	US$/oz	US$17.00	65%	65%	58%
Long Term FX Rate: A$0.85:US$1					

Payable Metal Factors are calculated for each metal and make allowance for concentrate treatment charges, transport losses, refining charges, metal payment terms and logistic costs. It is the view of Red River that three separate saleable base metal concentrates will be produced from Liontown East. Payable metal factors are detailed below in Table 2.

Table 2 Payable Metal Factors

Metal	Payable Metal Factor
Copper	Copper concentrate treatment charges, copper metal refining charges copper metal payment terms (in copper concentrate), logistic costs and net smelter return royalties
Lead	Lead concentrate treatment charges, lead metal payment terms (in lead concentrate), logistic costs and net smelter return royalties
Zinc	Zinc concentrate treatment charges, zinc metal payment terms (in zinc concentrate), logistic costs and net smelter return royalties
Gold	Gold metal payment terms (in copper and lead concentrates), gold refining charges and net smelter return royalties
Silver	Silver metal payment terms (in copper, lead and zinc concentrates), silver refining charges and net smelter return royalties

The zinc equivalent grade is calculated as per the following formula:

Zn Eq. = (Zn%*1.0) + (Cu%*3.3) + (Pb%*0.9) + (Au ppm*0.5) + (Ag ppm*0.025)

The following metal equivalent factors used in the zinc equivalent grade calculation has been derived from metal price x Metallurgical Recovery x Payable Metal Factor, and have then been adjusted relative to zinc (where zinc metal equivalent factor = 1).

Table 3 Metal Equivalent Factors

Mineral Resource	Copper (CuMEF)	Lead (PbMEF)	Zinc (ZnMEF)	Gold (AuMEF)	Silver (AgMEF)
West 45, Thalanga Far West, Orient, Liontown & Liontown East (Fresh)	3.3	0.9	1.0	0.5	0.025
Waterloo (Fresh)	3.4	0.75	1	0.5	0.025
Waterloo (Transition)	2.5	0.0	0.84	0.4	0.01

APPENDIX ONE – LIONTOWN EAST DRILLHOLE COLLARS

Hole ID	Depth	Dip	Azi (MGA)	East (MGA	North (MGA)	RL (MGA)	Lease ID
LTED01	576	-65	0	403788.0	7742679.0	296.8	EPM 14161
LTED02	570	-64.5	19.7	403786.4	7742678.0	296.8	EPM 14161
LTED03	474.6	-57	6.5	403699.8	7742679.7	294.4	EPM 14161
LTED04	162.75	-60	3.3	403790.0	7742679.0	296.8	EPM 14161
LTED05	530.7	-68	3.3	403788.0	7742679.0	296.8	EPM 14161
LTED05W1*	445.75	-67.6	2.6	403782.6	7742795.1	7.6	EPM 14161
LTED06	727.2	-72.5	352	403790.0	7742679.0	296.8	EPM 14161
LTED07	600.4	-74	330	403790.0	7742679.0	296.8	EPM 14161
LTED07W1	582.4	-74	330	403790.0	7742679.0	296.8	EPM 14161
LTED08	255.3	-76	330.5	403889.5	7742554.6	298.3	EPM 14161
LTED08A	132.6	-71.7	345.7	403890.3	7742553.8	298.4	EPM 14161
LTED08W1	701.05	-76	330.5	403889.5	7742554.6	298.3	EPM 14161
LTED08W2	697	-76	330.5	403889.5	7742554.6	298.3	EPM 14161
LTED08W3	673	-76	330.5	403889.5	7742554.6	298.3	EPM 14161
LTED08W4	693.6	-76	330.5	403889.5	7742554.6	298.3	EPM 14161
LTED08W5	400.5	-76	330.5	403889.5	7742554.6	298.3	EPM 14161
LTED08W6	492.6	-76	330.5	403889.5	7742554.6	298.3	EPM 14161
LTED09	508	-66.6	358.2	403694.2	7742678.0	294.2	EPM 14161
LTED10	453	-56	343.8	403694.6	7742675.7	294.2	EPM 14161
LTED11	139.4	-61	337.8	403699.6	7742676.4	294.3	EPM 14161
LTED11A	501.5	-61	337.8	403697.6	7742675.3	294.1	EPM 14161
LTED12	592.1	-72.5	337.1	403697.8	7742674.9	294.2	EPM 14161
LTED13	574.7	-76	1.8	403694.0	7742677.0	294.2	EPM 14161
LTCD18001	306	-60	346.8	403529.0	7742770.8	290.6	EPM 14161
LTCD18002	276	-60	350	403602.1	7742805.8	292.1	EPM 14161
LTCD18003	318.7	-60	349.8	403688.6	7742837.7	294.9	EPM 14161
LTCD18004	209	-60.8	346.8	403758.6	7742891.9	295.0	EPM 14161
LTCD18004A	417.8	-60.8	346.8	403758.6	7742891.9	295.0	EPM 14161
LTCD18005	429.5	-61.5	351	403839.4	7742847.6	296.4	EPM 14161
LTCD18006	399.4	-60	343.7	403761.5	7742804.1	297.4	EPM 14161
LTDD18007	453.9	-76	351.8	403604.2	7742796.1	292.2	EPM 14161
LTDD18008	459.8	-77	343.8	403531.2	7742764.6	290.7	EPM 14161
LTDD18009	540.65	-69	7.8	403510.1	7742663.2	291.5	EPM 14161
LTDD18010	627.8	-76	3.8	403509.8	7742661.7	291.6	EPM 14161
LTDD18011A	680	-77	23.8	403510.5	7742660.0	291.6	EPM 14161
LTDD18011	59.5	-77	23.8	403510.5	7742660.7	291.6	EPM 14161
LTDD18012	537.6	-65	2.8	403364.0	7742675.0	291.6	EPM 14161
*Collar co-ordinates are at point where wedge was commenced from parent hole							

APPENDIX TWO – LIONTOWN EAST MINERAL RESOURCE INTERSECTIONS

Hole ID	From (m)	To (m)	Intersection (m)	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Zn Eq (%)	Sample Type
LTCD18002	219	242	23	1.2	0.7	3.3	0.3	12	8.2	RC Split
LTCD18003	272	272.6	0.6	0.1	0.8	2.3	0.6	80	5.8	½ NQ2 CORE
LTCD18006	340.37	342	1.63	0.4	2.9	6.1	0.2	36	10.8	½ NQ2 CORE
LTDD18007	293	296.53	3.53	0.8	0.3	1.1	0.3	9	4.3	½ NQ2 CORE
LTDD18008	314.4	318.9	4.5	0.9	1.9	3.0	0.1	13	8.0	½ NQ2 CORE
LTED01	452.7	457	4.3	0.6	6.6	15.1	1.6	56	25.2	½ NQ2 CORE
LTED03	419.6	423.5	3.9	0.2	1.9	4.9	1.5	37	9.0	½ NQ2 CORE
LTED05	504.7	515	10.3	0.9	4.5	10.0	1.1	46	18.8	½ NQ2 CORE
LTED05W1	169.9	176	6.1	0.7	7.0	14.1	1.0	51	24.4	½ NQ2 CORE
LTED06	501.25	508	6.75	0.2	2.9	6.1	1.1	19	10.4	½ NQ2 CORE
LTED07	529.4	548.5	19.1	0.5	2.3	6.4	0.2	13	10.5	½ BQ CORE
LTED07W1	523.8	530.7	6.9	0.4	3.3	9.0	0.2	16	13.8	½ BQ CORE
LTED08W3	620.8	627	6.2	1.5	1.0	6.8	0.7	18	13.4	½ NQ2 CORE
LTED08W4	625.2	635.9	10.7	0.4	1.4	5.5	0.4	13	8.6	½ NQ2 CORE
LTED09	419.02	434.6	15.58	0.4	4.0	8.8	1.2	60	15.8	½ NQ2 CORE
LTED10	379.2	384	4.8	0.6	5.0	12.5	4.2	120	23.9	½ NQ2 CORE
LTED11A	434.24	435.2	0.96	0.3	2.6	9.2	0.4	45	13.7	½ NQ2 CORE
LTED12	517.25	535.4	18.15	0.3	2.1	5.1	0.5	19	8.8	½ NQ2 CORE
LTED13	485.2	494	8.8	0.5	1.6	4.8	0.8	18	8.8	½ NQ2 CORE

APPENDIX THREE – LIONTOWN EAST MINERAL RESOURCE JORC 2012 TABLES

Section 1 Sampling Techniques and Data - JORC Code, 2012 Edition

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 (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• Diamond drilling and reverse circulation (RC) techniques were used to obtain samples at Liontown East. • The Mineral Resource estimate is based on diamond drill samples and reverse circulation samples. • Diamond core was placed in core trays for logging and sampling. Half core samples were nominated by the geologist based on visual mineralisation. Intervals ranged from 0.2 to 1.5m based on geological boundaries. • Diamond core samples were sawn in half using an onsite core saw. • RC samples are split using a rig-mounted cone splitter to collect a 1m sample 3-5kg in size. • All samples were sent to Intertek Genalysis laboratories Townsville. • Samples were crushed to sub 6mm, split and pulverised to sub 75µm to produce a representative sub-sample for analysis. • Analysis consisted of a four-acid digest and Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES) for the following elements; Ag, As, Ba, Bi, Ca, Cu, Fe, K, Mg, Mn, Na, Pb, S, Sb, Ti, Zn, & Zr. • Samples were assayed for Au using a 25g Fire Assay technique.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• Mud rotary, Reverse Circulation and Diamond drilling methods were used at Liontown East. • Mud rotary drilling was used to establish hole collars to the base of the cover sequence then a change of drilling method to Diamond core (HQ size) or RC was undertaken. For most holes a further change in method to Diamond core NQ2 or BQ size took place for intersecting the target zone and drilling to end of hole. • Some holes were drilled as wedges off a parent hole. Parent holes were drilled as HQ size diamond core, followed by wedging and navigational drilling to establish daughter holes which were then completed with NQ2 or BQ size diamond core drilling. • All drilling through the current Resource area is NQ2 or BQ size diamond core. • Reverse circulation drilling used a 5.5" bit • Mud Rotary drilling used a 7 7/8" PCD bit.
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.*	• Sample recovery is effectively 100% through the area of the Mineral Resource. • Intervals of core loss are measured and recorded by geologists. • Moisture content and sample recovery were

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.*	recorded for each RC sample.
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.*	• Holes are logged to a level of detail that would support mineral resource estimation • Qualitative logging includes lithology, alteration and textures. • Quantitative logging includes sulphide and gangue mineral percentages. • All drill core and RC chips were photographed • All drill holes have been logged in full. • RC drilling contractors adjust their drilling approach to specific conditions to maximise sample recovery.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• NQ2 and BQ size core was sawn and half core sent for assay. • Sample preparation is industry standard, occurring at an independent commercial laboratory. • Samples were crushed to sub 6mm, split and pulverised to sub 75µm to produce a representative sub-sample for analysis. • Standards were submitted at an overall rate of 1 in 20 with greater than 90% of results for standards returning within 3 standard deviations of certified values for Zn, Pb, Cu and Ag. 90% of ore grade standards returned within 2 standard deviations of their certified value. • The sample sizes are appropriate to correctly represent the mineralisation style. • All RC samples are split using a rig-mounted cone splitter to collect a 1m sample 3-5kg in size. All samples were intended and assumed to be dry, moisture content was recorded for every sample.
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.*	• The assay methods employed are considered to achieve a near total digestion and analysis. • Standards were submitted at an overall rate of 1 in 20 with greater than 90% of results for standards returning within 3 standard deviations of certified values for Zn, Pb, Cu and Ag. 90% of ore grade standards returned within 2 standard deviations of their certified value. • Certified standards returned results within an acceptable range for Mineral Resource estimation. • The Intertek Genalysis laboratory applied its internal quality control processes including standard, blank and duplicate analysis. • Field duplicates are taken for RC samples at a rate of 1 in 40. No field duplicates were submitted for diamond core.

Criteria	JORC Code explanation	Commentary
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.*	• Laboratory results have been reviewed by Company geologists and laboratory technicians. • Visual verification of core for reported significant intersections has been undertaken. • No twinned holes were drilled for this data set. • Data was entered into a central database and then validated by a series of validation checks to ensure erroneous data was not saved into the resource database. • Below detection limit results were replaced with values half of the detection limit.
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.*	• Collars surveyed were surveyed with RTK GPS and handheld GPS instruments • Down hole surveys conducted with digital magnetic multi-shot camera • Coordinate system used is MGA94 Zone 55 • Topographic control is based on a detailed 3D Digital Elevation Model
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.*	• Drill spacing is predominantly between 60 and 90 m, ranging up to 100 m and down to 15 m • This distribution confirms a degree of geological continuity within the mineralised system such that Mineral Resource Estimation and Inferred classification is appropriate. • Compositing of samples to 1 m was applied.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• Drill holes are orientated perpendicular to the strike of the host lithologies and mineralised zone. • The drilling direction and inclination is designed to not bias sampling. • The orientation of the drill core for structural assessment is determined using a downhole digital orientation tool.
Sample security	• *The measures taken to ensure sample security.*	• Samples have been overseen by company staff during transport from site to Intertek Genalysis laboratories, Townsville.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No external audits or reviews have been carried out at this point.

Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• The drilling was conducted on Exploration Permit EPM 14161 • EPM 14161 is held by Cromarty Pty Ltd. (a wholly owned subsidiary of Red River Resources) and forms part of Red River's Thalanga Operation • Red River engaged Native Title Claimants, The Gudjalla People to conduct cultural clearances of drill pads and access tracks • The Exploration Permits are in good standing • There are no Joint venture agreements relevant to the area of interest • A 0.8% Net Smelter Return (NSR) royalty is payable to FTI Consulting and a 0.7% NSR royalty payable to Guandong Guangxin Mine Resources Group Co Ltd (GMRG) on sale proceeds of product extracted from EPM 14161
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Historic Exploration was carried out by Esso Exploration & PanContinental Mining. This included drilling and geophysics • Historic drilling over the Liontown East area is shallow and did not intercept the current Mineral Resource mineralisation.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Liontown East deposit is hosted within Cambro-Ordovician marine volcanic and volcano-sedimentary sequences of the Mt Windsor Volcanic Sub-province. • The Liontown and Liontown East deposits are Volcanic Hosted Massive Sulphide (VHMS) base metal style deposits • Liontown East consists of stratiform massive and stringer sulphide zones developed within the lower units of a thick sedimentary package immediately above a rhyodacite pumice breccia. Lenses of Cu Au dominated mineralisation continues into the footwall.

Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*
	  ○ *easting and northing of the drill hole collar*
	  ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*
	  ○ *dip and azimuth of the hole*
	  ○ *down hole length and interception depth*
	  ○ *hole length.*
	• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the*
		• See Appendix One – Drill Hole Details
		• See Appendix Two – Mineral Resource Intersections

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.*	• Interval length weighted assay results are reported in Appendix Two • Zn equivalent formula utilised is: Zn% + (Cu%*3.3) + (Pb%*0.9) + (Auppm*0.5) + (Agppm*0.025)
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• The mineralisation is stratbound and interpreted to be dipping at approximately 70 degrees, drill holes have been designed to intercept the mineralisation as close to perpendicular as possible. • Where down hole intercepts are reported, true widths are likely to be approximately 75% • The typical drill sample interval is 1m in length • The average downhole thickness of the mineralized zone is 8.2m.
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.*	• Refer to plans and sections within report • These are included in the body of the updated resource report for the drill collars used in the resource estimate.
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.*	• The accompanying document is considered to represent a balanced report • All drill intercepts significant to the reported Liontown East Mineral Resource are listed in Appendix Two
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*.	• All meaningful and material data is reported • Not Applicable
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Further infill drilling will be required within the deposit area to increase confidence to Indicated Resource classification. • Drilling at depth to extend the resource will be undertaken. • Exploration continues within the sequence

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• The survey, sampling and logging data was electronically imported into the resource database. Checks were made of the original lab sample sheets and the database to ensure that transcription errors were not present. A visual check was made of the drill traces, assay and logging data in the 3D environment of Datamine to ensure that results correlated between drill holes and were in line with the geological interpretation.
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.*	• Site visits to Liontown East drill sites and Thalanga Mine Site Core Facility were undertaken by the competent person in April and June 2018. • Review of data collection processes was undertaken. • No material issues were identified.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• Confidence in the geological interpretation of the mineral deposit as a VHMS is high based its characteristics and their affinities with other well-known deposits within the Seventy Mile Range Group • Consistency of the host sequence between holes through and around the Mineral Resource is high. The sequence continues along strike and is well drilled at the Liontown deposit 1km to the west where the same style of mineralisation is located within the same horizon. This repetition being a function of contemporaneous deposition • The assumption that mineralisation is continuous between holes within the resource area is fair considering consistency of host and mineralisation and the drill hole spacing defining them • There is moderate potential for local discontinuities of the mineralised system from depositional facies variations, faulting and dykes interruptions. There is low potential for these to have major impact on the global Mineral Resource • The main lens of mineralisation is contained between a fine-grained siltstone and a thick package of rhyodacite pumice breccia. • A mineralised envelope containing massive, banded and network stringer sulphide mineralisation (Sphalerite Galena and Chalcopyrite pyrite) was used to constrain the resource estimate. • Within the immediate footwall lesser Zn Pb Cu stringer sulphide mineralisation of undetermined continuity has been excluded

Criteria	JORC Code explanation	Commentary
		from this resource estimate. • Similarly, Cu Au mineralisation within the footwall pumice breccia below the defined resource has not been included in the estimate. This Cu Au mineralisation has similarities to the Carrington Lode mined at the Liontown deposit. • Further drilling at closer spacing may prove continuity of these areas. • At the east margin of the resource area an influx of detrital sands appears to onlap and dilute out the mineralizing system. Up-dip and to the west shearing out and a general dissipation of the mineralisation occurs.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• The defined Mineral Resource has dimensions of a narrow lens that strikes at a bearing of 075 and dips at 60 degrees to the South East. • The extents of the Mineral Resource span 250 m in strike and 480 m down plunge. • The Mineral Resource ranges from 0.5 to 14 m in true thickness with an area weighted average true thickness of 5.1 m. • The Mineral Resource is defined between 170 m and 570 m metres below surface level. • The resource is open at depth.
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (eg 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*	• The resource model was constructed using Datamine Studio RM software. • A mineralised envelope containing continuity of massive, banded and network stringer sulphide mineralisation (sphalerite galena chalcopyrite and pyrite) was used to constrain the resource estimate. This envelope equates to approximately a % 5 Zn Eq cut off. • Extrapolation of mineralised envelope beyond the extents of drill hole confirmed mineralisation was approximately 1/3 of drill spacing. • Top capping of high grade Cu, Pb, Ag and Au samples was applied to raw assay data. 9 Cu samples (>2% Cu), 7 Pb composites (>10% Pb), 5 Ag samples (>140 ppm Ag) and 5 Au samples (>4 ppm Au) were top capped to their population means. • The sample data was composited to a length approximating 1m. • An inverse distance squared estimate was carried out using a multiple pass method with sample limitations and octant requirements and increasing search distances. A block size 1/3 of sample spacing was used. • This method is suitable for an Inferred Resource estimation at Liontown East given the style and orientation of the mineralization and the current drill spacing • The estimation process was validated by

Criteria	JORC Code explanation	Commentary
	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.*	comparing global block grades with the average composite grades, visual checks comparing block grades with raw assay data, volume checks of the ore domain wireframe vs the block model volume and comparison of composites and block grades by RL. • The validation steps taken indicate that the block estimates are a realistic representation of the source assay data and that they block model volumes are valid in comparison to the modelled interpretation.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• The resource tonnages have been estimated on a dry basis
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• A cut-off of 5% Zn Eq has been used to report resources. This was chosen as the lower limit of potentially economically extractable material within an underground mining operation in this style of deposit. • See *Zinc Equivalent Calculation* in main body of this report.
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• The Resource has been estimated with the intent of being mined by selective mining methods such as underground drive development and long hole stoping techniques. A minimum mining extraction thickness of 2 metres would be likely. • For conversion to Reserve, material that is sub 2 m thick will require a higher cut off to accommodate the additional minimum mining width dilution. • Approximately % 5 of the reported resource is of sub 2 m thickness, no exclusion of this material has been made.
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	• The assumed processing is via crushing milling and conventional flotation to produce concentrates containing Zn, Pb, Ag, Cu and Au. • Metallurgical test work will be required to confirm the processing metrics of the ore material. • Ore sorting may be applicable • The ore would likely be processed at the existing Thalanga processing facility. • For Zinc Equivalent assumptions see *Zinc Equivalent Calculation* in main body of this report.
Environmen-tal 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*	• Liontown East is located 1km east of the currently ceased Liontown Mine. • Government approvals would need to be obtained for mining at Liontown East. • The tailings produced during the creation of the concentrate may potentially be disposed of at

Criteria	JORC Code explanation	Commentary
	processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	the currently permitted Thalanga Mine tailings facility. • Storage of waste rock from a mine at Liontown East will require planning and permitting. Waste rock would likely be required as stope fill following ore extraction.
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• The bulk density of the Mineral Resource was calculated from content estimates of dense minerals based on modelled block grades of Zn, Pb, Cu, Fe and Ba and measured gangue densities. The density calculation incorporates void and porosity influences through an assigned (and validated) gangue density. • The density calculation was validated by empirical test work on the Liontown East core following the Archimedes principle. 16% of samples within the resource area were tested. • The densities are reported on a dry basis.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• The resources have been classified according to the drill density and the modelled continuity of both the thickness and grade of the mineralised zones in the view of the competent geologist. • The resource classification of Inferred is deemed appropriate in relation to the drill spacing, likely geological continuity of the mineralised domains and the reliability of supporting data. With the reliability being demonstrated through quality assessment processes.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• This maiden Inferred Resource Estimate has not been reviewed or audited.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.*	• The Resource estimate is deemed to be an accurate reflection, to the precision allowable via the current data spacing, of both the geological interpretation and the deposits potentially economic tonnage and grade distribution. • The Resource is reported at a 5 % Zn Eq cut off. • Within the Resource model local smoothing of grade occurs. • The Resource area is open at depth and footwall mineralisation has been excluded from the estimate. Further drilling will allow inclusion of Resources from these areas. • No production history occurs at Liontown East

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	• *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	