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Horseshoe Lights Copper-Gold Resource Grade-Tonnage Review

- **2013 Resource Model (JORC 2012) grade vs tonnage sensitivity review completed**
- **At 0.25% Cu cut-off, in situ resource is 178,000t Cu metal @ 0.67%; an increase of ~50,000kt Cu metal compared to the 0.5% cut-off**
- **Current model and grade-tonnage relationship excludes ~54,500t of Cu metal contained within high-grade copper mineralisation extracted during previous mining**
- **Horseshoe Lights Deposit current copper endowment totals ~232,000t Cu metal (excluding copper contained in surface stockpiles and tailings)**
- **Review highlights significant sensitivity for tonnages and metal immediately below the current cut-off of 0.5% Cu**
- **AUD copper price has improved significantly since previous resource estimation was completed in 2013 - from ~$7500/t to a current price of ~$14,000/t**
- **56 Reverse Circulation (RC) holes, totalling 6075m have been drilled into the Resource since the 2013 Resource model was released**
- **Horseshoe Lights Copper-Gold Project summary:**
  - ***Current in situ resource 128 kt Cu metal @ 1.0% (0.5% cut-off)***
  - ***Current stockpile resource 9.5 kt Cu metal @ 0.57%***
  - ***Extensive drilling (over 120km total) and metallurgical test work***
  - ***Open pit only drilled to a depth of ~250m – proximal major deposits in Bryah Basin have been drilled to ~800-1000m***
  - ***Horseshoe is targeting a deep sulphide copper target – "Below the Dolerite" (BTD)***

Horseshoe Metals Limited (ASX: **HOR**) **('Horseshoe' or the 'Company')** is pleased to report an assessment and review of the 2013 Resource Model (JORC 2012) grade vs tonnage sensitivity in relation to its Horseshoe Lights Copper-Gold deposit located in the Bryah Basin, Western Australia.

The prevailing AUD copper price in 2013 when the existing JORC Resource Estimate was completed was approx. $7500/t, compared with the current price of approx. $14,000/t.

Given the significant increase in copper pricing, an assessment of the Resource Model with respect to grade vs tonnage sensitivity has been completed and is summarised below.

The Horseshoe Lights Copper-Gold Project is the original Cu/Au VMS discovery in the Bryah Basin and is located approx. 60 km west of DeGrussa Copper Mine operated by Sandfire Resources (ASX: SFR). Past production from Horseshoe Lights includes around **316,000 oz Au & 55 kt Cu metal** in two phases of mining, and the deposit contains a current *in situ* resource **128 kt Cu metal @ 1.0% (0.5% cut-off) and 36,000 oz Au** (refer Table 1, Appendix 1, and Table 4).

2013 Resource Model Summary

The current JORC Resource Estimate was reported and classified at a cut-off grade of 0.5% Cu in June 2013 (refer ASX release dated 5 June 2013 -under JORC 2004 and under JORC 2012 in the Quarterly Report released on 31 July 2013).

The current Resource was calculated and provided to the Company at a variety of cut-off grades, as is the norm for such exercises, highlighted in Table 1 below. The Company has provided interpolated values for cut-off grades between 0.25% Cu and 0.5% using a curve of best fit to highlight the effect of lower cut-off grades on the current copper resource.

Table 1. Summary of Grade and Tonnage relationship, Copper metal at Horseshoe Lights Deposit (for full classifications at each cut-off, refer Appendix 1)

CSA 2013 model	%Cu	Resource (Mt)	Cu Grade (%)	Cu Metal (t)
global	**0.18**	**36.48**	**0.535**	**195,099**
Cut-off grade	**0.25**	**26.55**	**0.670**	**177,891**
interpolated	*0.3*	*22.63*	*0.74*	*167,800*
interpolated	*0.35*	*19.43*	*0.81*	*157,700*
interpolated	*0.4*	*16.86*	*0.87*	*147,800*
interpolated	*0.45*	*14.70*	*0.94*	*138,100*
Cut-off grade	**0.5**	**12.85**	**1.001**	**128,646**
Cut-off grade	**0.6**	**9.82**	**1.141**	**112,110**
Cut-off grade	**0.7**	**7.70**	**1.277**	**98,368**
Cut-off grade	**0.8**	**6.16**	**1.410**	**86,822**
Cut-off grade	**0.9**	**4.92**	**1.552**	**76,313**
Cut-off grade	**1.0**	**4.00**	**1.692**	**67,585**

N.B. Please note rounding errors may occur.

Grade-tonnages and metal relationships are shown in graphs at Figures 2 and 3, with the interpolated points highlighted.

The Company notes that the current model and grade-tonnage relationship has been altered by the exclusion of substantial high-grade copper mineralisation from previous mining events, with estimated historical production of around **54,500t** of Cu metal from **1.7Mt** of copper and gold ore averaging around **3.2% Cu** (and 1.8 g/t Au) between 1988-1994.

As shown in Table 1, and Table 2 below, an additional **49,250** tonnes of copper metal is estimated to be available to the resource between cut-off grades of 0.5% and 0.25% Cu. This material averages 0.36% Cu from 13.7Mt of resource, with around 90% of this material reporting as fresh.

Table 2. Summary of Material types for Resource between 0.5-0.25% Cu, Horseshoe Lights Deposit

Between 0.50-0.25% Cu cut off	(Resource) Mt	Cu Grade %	Cu Metal (t)
Oxide	0.89	0.35	3,102
Transition	0.49	0.36	1,753
Fresh	12.32	0.36	44,390
Total	**13.70**	**0.36**	**49,245**

Using an interpolated line of best fit to the grade-tonnage curve, at a 0.3% Cu cut-off, an additional **39,000** tonnes of copper metal is estimated to be available to the resource between cut-off grades of 0.5% and 0.3% Cu, averaging 0.40% from 9.8 Mt of material.

Using the interpolated value for 0.4% Cu cut-off, an additional **19,000** tonnes of copper metal is estimated to be available to the resource between cut-off grades of 0.5% and 0.4% Cu, averaging an estimated 0.48% Cu from 4.0 Mt of material.

Although the interpolated figures cannot be considered precise, they highlight the sensitivity of the resource volume and contained metal to a cut-off grade at 0.5% Cu, and that future MRE's should formally include additional lower cut-off grades.

Significant drilling has been completed post the July 2013 Resource calculation, comprising 56 RC holes (RC1103-1159, excluding RC1109) drilled in the resource area (refer Figure 4) totalling 6075m, with results summarised in Table 3.

Background to current MRE

The July 2013 MRE was prepared by respected consultancy CSA Global Pty Ltd (CSA) for the remaining *in situ* mineralisation at the Horseshoe Lights copper-gold deposit, which updated an earlier estimate from December 2011. CSA noted that the modelling and resource estimation study used a strong, well-constructed analytical database to establish a robust resource estimate for gold, copper and silver mineralisation, using all the reliable historical data and results of the Company's 2010-2013 drilling.

CSA chose 0.18% Cu as the natural cut-off for the deposit, after noting the unrestricted copper grade population had a positively skewed log distribution and that the cumulative probability plot demonstrated an inflection point at that grade.

Interpretation of mineralised bodies was carried out for 34 W-E cross sections over approximately 700m of strike. Strings were generated for three lodes at 0.18% cut-off grade for copper mineralisation, as well as strings for internal dilution, and strings for a 'chalcocite domain' with high copper and relatively high silver grades. Grade composites were created to assist with the interpretation of mineralisation.

CSA then undertook development of the block model and grade interpolation employing Multiple Indicated Kriging (MIK), with depletion of the model using a digital terrain model (DTM) of the existing pit surface, and formally reported the MRE and classification of Resources at 0.5% Cu cut-off. Specific gravity values for the tonnage estimation were provided by Horseshoe Metals, as were DTM's of oxidation boundaries. CSA also reviewed QA/QC analysis undertaken by Horseshoe personnel at the time. All surface stockpiles and flotation tailings values were excluded from the MRE provided by CSA.

The developed block model was classified using geostatistical parameters, geological continuity characteristics and drill hole density. Generally, CSA classified blocks as Measured Resource with the assumption that at least three samples from at least two drillholes had been selected for grade interpolation, and that the exploration grid density was close to 20 x 20 metres. Those areas of the deposit that were explored with the density of between 20 x 40 and 40 x 40 metres were classified as Indicated.

All other blocks were classified as Inferred. All model cells south from Section 16 (7194140 mN) were downgraded to Inferred category due to the lack of more modern drilling results (refer Figure 1).

At the time, CSA recommended the following geological and exploration activities to improve the MRE:

- Conduct supplementary drilling throughout the deposit south from the section 16 (7194140 mN) at a density sufficient to complement and confirm the results of the historical drilling.
- Collect additional core samples for density measurements to support the current density estimate, with multiple samples to be collected in every drill hole in mineralisation and in waste.
- Further diamond core drilling to collect additional geotechnical and metallurgical information.
- Reconcile the modelled mineralised bodies within the limits of the existing pit against the historical production results.
- Use optimised pit shells as a guide to design further drilling programmes.
- Subsequent model updates to employ further modelling of internal dilution.

The Company notes the recommendations, and either is or intends to incorporate these directions into Phase 2 and additional activities prior to commissioning of an updated MRE for the Horseshoe Lights *in situ* mineralisation.

As previously advised (refer Horseshoe Lights Activities Update 3 March 2022) the Company intends updating inputs for the 2014 Scoping Study (released to the market on the 19 December 2014), primarily to assess the effects on and mineral values associated with the different resource types, grade cut-offs, and resource classifications, and their respective development streams. It is also anticipated that updated economics will highlight additional drilling requirements in certain areas, driven by new, deeper pit shells, as suggested by CSA above. The Scoping Study will utilise the current MRE.

Phase 2 RC drilling will commence during March, primarily targeting the Motters zone (refer blue encircled area, Figure 4), following up significant shallow copper mineralisation highlighted in Phase 1 activities (refer ASX release dated 29 October 2021). The unmined southern extension of the Motters structure which is proximal to the eastern wall of the open pit will also be further assessed during this programme.

The Board of Directors of HOR has authorised this announcement to be given to the ASX.

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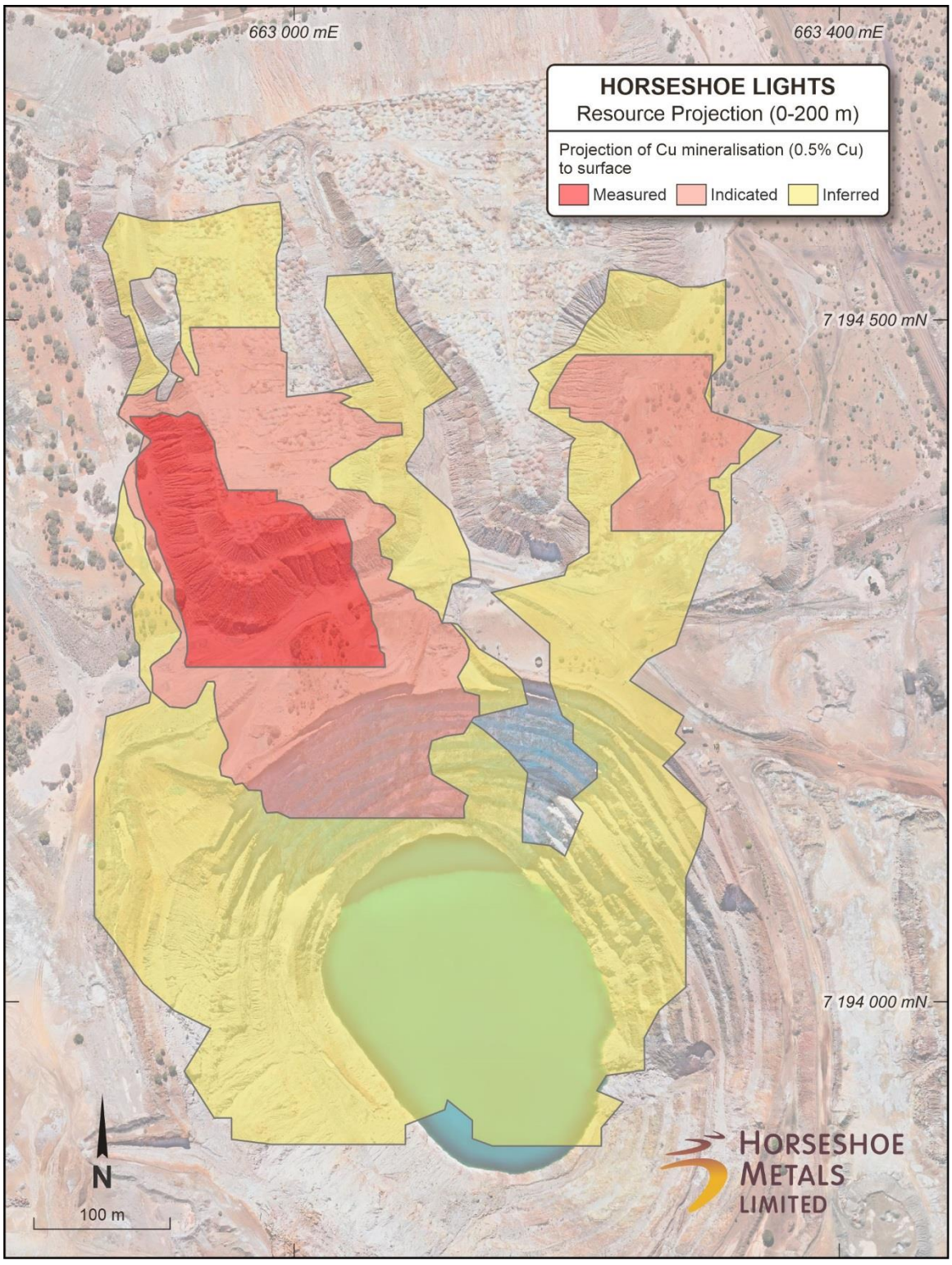

Figure 1: Horseshoe Lights Deposit- vertical resource projection highlighting spacial relationship of resource confidence classifications

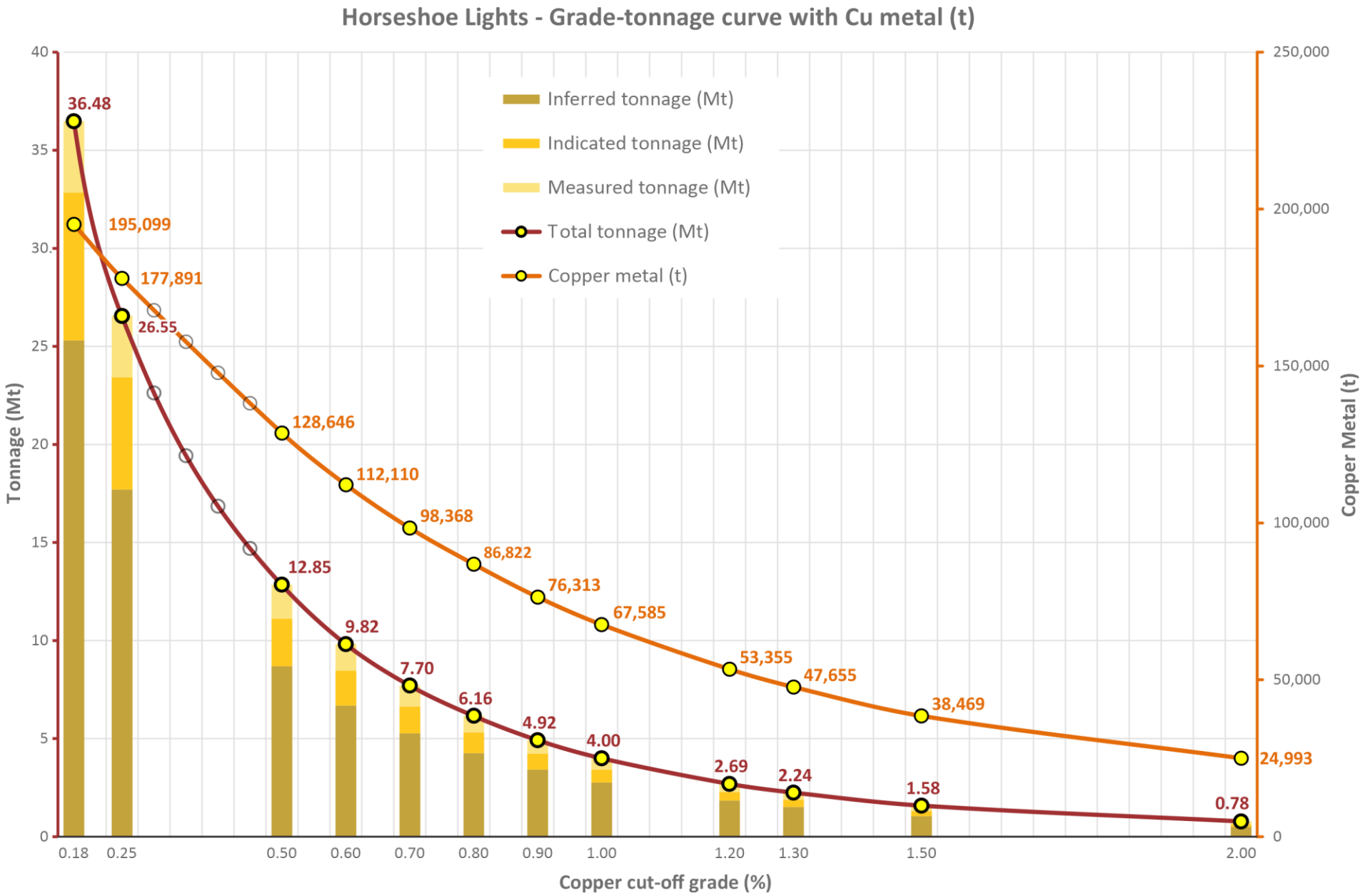

Figure 2: Horseshoe Lights Deposit- Grade Tonnage curve with Cu metal

Figure 3: Horseshoe Lights Deposit- Grade Tonnage curve with Cu grades

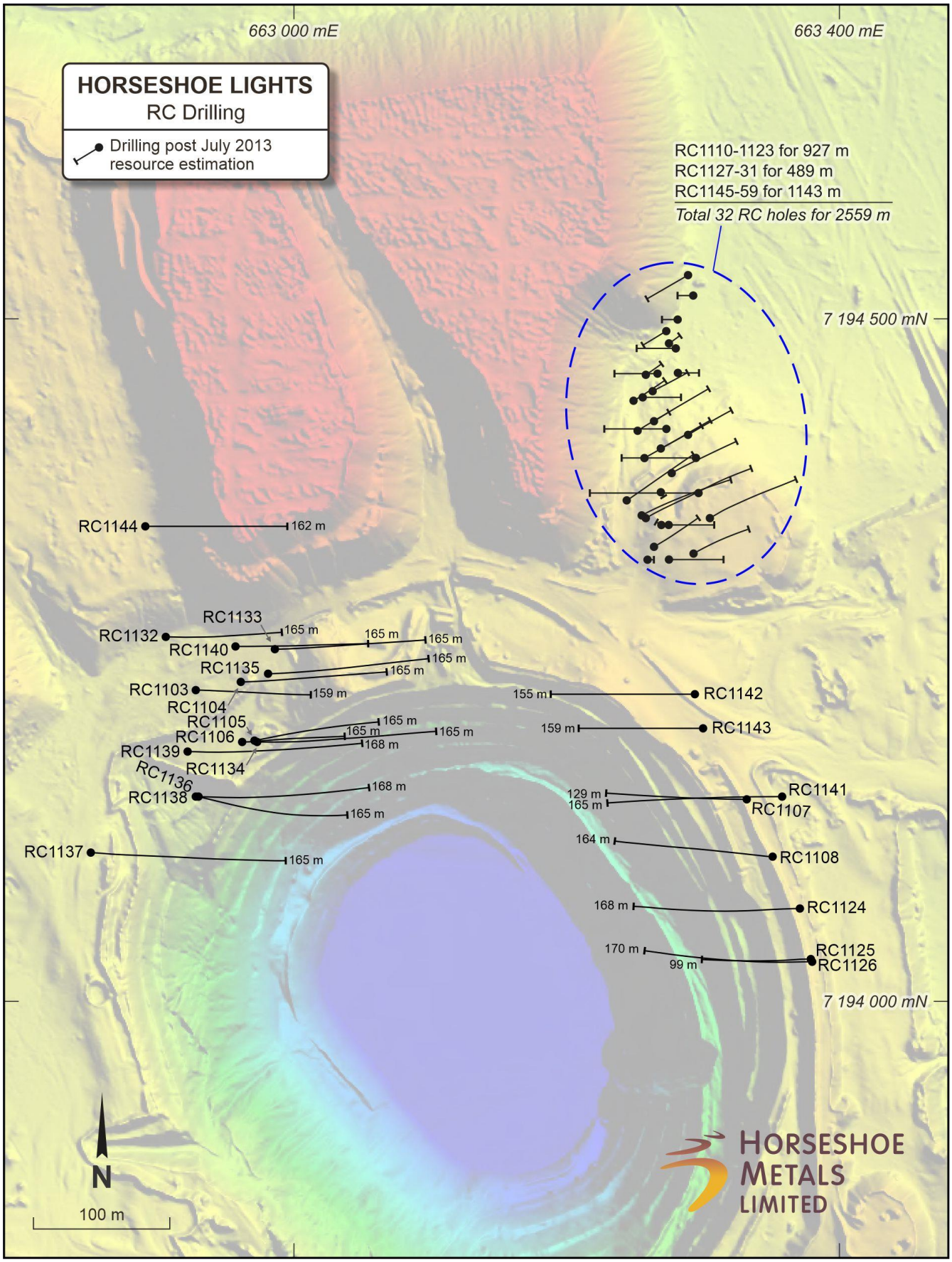

Figure 4: Horseshoe Lights Deposit- Location of Drilling completed after July 2013 Resource Estimation

Table 3: Holes not included in July 2013 CSA resource estimation

Composite Intersects Cu >1m>= 0.5 %, allowing for 2m of internal dilution

Site ID	North MGA	East MGA	RL AHD	Dip	Azimuth	Depth	From	To	Length	Cu %
RC1103	7194228	662928	525	-62	90	159	84	86	2	0.56
							90	**105**	**15**	**1.33**
							110	**121**	**11**	**0.77**
							136	137	1	0.76
							143	144	1	0.51
							148	152	4	0.50
RC1104	7194234	662961	526	-50	90	165	**10**	**16**	**6**	**0.87**
							34	**58**	**24**	**1.17**
							75	76	1	1.94
							82	**92**	**10**	**2.20**
							97	100	3	1.06
							105	**114**	**9**	**0.84**
							122	**131**	**9**	**3.13**
							134	137	3	0.53
							140	**149**	**9**	**0.88**
RC1105	7194191	662971	525	-62	80	165	**36**	**47**	**11**	**0.88**
							49	**53**	**4**	**1.51**
							56	**68**	**12**	**0.90**
							69	70	1	0.56
							75	76	1	0.86
							81	82	1	0.53
							88	**99**	**11**	**1.08**
							102	**114**	**12**	**0.78**
							117	119	2	0.74
							145	146	1	0.82
							152	156	4	0.71
							159	163	4	0.66
RC1106	7194190	662962	525	-67	90	165	42	43	1	0.58
							53	**62**	**9**	**0.80**
							69	75	6	0.62
							80	**85**	**5**	**1.28**
							88	**95**	**7**	**0.80**
							101	102	1	0.77
							119	**126**	**7**	**0.82**
							134	135	1	0.76
							148	149	1	0.50
							156	159	3	1.47
RC1107	7194148	663332	530	-35	270	129	70	72	2	0.90
							95	**100**	**5**	**1.72**
							104	105	1	1.08
							110	114	4	1.04
							120	121	1	0.82
RC1108	7194106	663351	530	-40	270	164	111	112	1	0.53
							126	**136**	**10**	**2.08**
RC1110	7194459	663258	522	-70	60	41	**0**	**14**	**14**	**0.98**
							17	**34**	**17**	**0.85**
RC1111	7194482	663275	520	-65	60	23	**0**	**13**	**13**	**0.80**
RC1112	7194440	663249	524	-60	60	53	**0**	**31**	**31**	**1.31**
RC1113	7194447	663263	524	-55	60	50	**0**	**7**	**7**	**0.91**
							15	**33**	**18**	**0.65**
RC1114	7194418	663252	526	-70	60	71	**17**	**22**	**5**	**1.04**
							25	**43**	**18**	**0.67**
							63	64	1	0.78
RC1115	7194425	663264	526	-50	60	71	**0**	**6**	**6**	**0.99**
							12	14	2	1.37
							42	43	1	0.59
RC1116	7194398	663257	529	-60	60	87	22	23	1	0.61
							26	**40**	**14**	**1.03**
							50	52	2	0.64
							56	57	1	0.71

Site ID	North MGA	East MGA	RL AHD	Dip	Azimuth	Depth	From	To	Length	Cu %
RC1117	7194415	663289	527	-60	60	72	**11**	**15**	**4**	**1.86**
RC1118	7194405	663269	528	-60	60	78	10	12	2	2.35
							15	17	2	1.31
							33	35	2	0.65
							38	44	6	0.64
RC1119	7194532	663289	519	-15	240	36	**10**	**18**	**8**	**0.70**
							21	25	4	0.63
RC1120	7194491	663273	521	-50	240	30	0	3	3	1.04
							6	**25**	**19**	**0.86**
RC1121	7194367	663244	531	-60	60	105	24	25	1	0.62
							29	30	1	1.11
							43	44	1	0.58
							53	56	3	0.67
							61	**65**	**4**	**2.03**
							68	69	1	0.64
							88	92	4	0.81
							100	101	1	0.55
RC1122	7194387	663277	530	-60	60	93	**14**	**25**	**11**	**1.60**
							32	35	3	0.92
							45	**55**	**10**	**0.54**
RC1123	7194356	663255	533	-60	60	117	29	30	1	0.70
							32	33	1	0.54
							42	**60**	**18**	**1.29**
RC1124	7194068	663371	530	-35	270	168	137	138	1	1.87
							142	**160**	**18**	**1.06**
							164	165	1	0.50
RC1125	7194031	663379	530	-35	270	99	*NSI*			
RC1126	7194029	663380	530	-38	270	170	*NSI*			
RC1127	7194354	663258	533	-35	60	102	31	32	1	1.20
							42	**46**	**4**	**2.08**
							49	50	1	0.75
							82	83	1	0.56
							92	95	3	0.78
RC1128	7194348	663245	533	-60	60	108	34	36	2	1.58
							50	52	2	0.58
							61	63	2	0.68
							70	**77**	**7**	**1.47**
							81	82	1	0.60
							86	87	1	1.11
							97	100	3	1.32
RC1129	7194354	663305	533	-60	60	123	*NSI*			
RC1130	7194333	663264	533	-60	60	78	*NSI*			
RC1131	7194328	663293	533	-60	60	78	0	1	1	0.65
							25	26	1	1.65
RC1132	7194267	662906	526	-60	90	165	**103**	**116**	**13**	**1.01**
							133	138	5	0.58
							148	**154**	**6**	**0.85**
RC1133	7194258	662986	529	-50	90	165	**31**	**38**	**7**	**0.85**
							46	49	3	1.66
							58	**68**	**10**	**1.34**
							73	74	1	1.20
							86	87	1	0.70
							119	122	3	0.51
							135	136	1	0.50
							144	146	2	0.82
RC1134	7194190	662973	525	-40	90	165	**37**	**61**	**24**	**1.03**
							64	65	1	4.34
							73	75	2	0.79
							83	**98**	**15**	**1.15**
							116	117	1	0.76
							140	142	2	1.27
							145	**153**	**8**	**1.10**
RC1135	7194240	662981	526	-50	90	165	**9**	**33**	**24**	**3.77**

Site ID	North MGA	East MGA	RL AHD	Dip	Azimuth	Depth	From	To	Length	Cu %
							54	**60**	**6**	**1.26**
							64	**70**	**6**	**1.50**
							73	77	4	0.57
							81	82	1	0.64
							88	89	1	0.57
							99	**108**	**9**	**0.72**
							127	129	2	0.93
							132	133	1	0.50
							149	150	1	0.69
RC1136	7194150	662930	515	-50	105	165	75	76	1	1.10
							81	82	1	0.72
							102	**114**	**12**	**1.19**
							119	123	4	0.97
							134	**141**	**7**	**1.32**
RC1137	7194109	662851	525	-30	92	165	*NSI*			
RC1138	7194150	662928	517	-45	91	168	57	58	1	0.96
							83	**112**	**29**	**2.22**
							122	123	1	0.75
							127	128	1	0.60
							141	142	1	1.32
							153	154	1	0.52
							163	164	1	1.64
RC1139	7194183	662922	525	-40	90	168	64	65	1	0.55
							81	**92**	**11**	**0.94**
							104	**119**	**15**	**1.00**
							130	132	2	0.75
							137	138	1	0.76
							147	148	1	1.21
							160	162	2	1.77
RC1140	7194260	662957	526	-60	90	165	28	29	1	3.07
							33	**63**	**30**	**2.19**
							72	73	1	0.88
							84	85	1	1.04
							88	**97**	**9**	**0.93**
							127	128	1	0.61
							131	135	4	0.52
							138	144	6	0.67
							147	148	1	0.84
							154	157	3	0.51
RC1141	7194150	663358	529	-40	270	165	0	3	3	1.08
							104	105	1	0.85
							114	115	1	0.56
							122	**139**	**17**	**0.66**
							141	142	1	0.63
RC1142	7194225	663294	531	-47	270	155	42	43	1	0.76
							58	59	1	0.51
							74	75	1	0.61
RC1143	7194200	663300	532	-55	270	159	51	56	5	0.96
							132	133	1	1.01
							136	137	1	0.75
RC1144	7194348	662891	532	-50	90	162	39	40	1	0.52
							50	**58**	**8**	**0.96**
							72	**83**	**11**	**1.54**
							124	125	1	0.65
							128	129	1	0.89
							134	138	4	0.51
							141	142	1	0.64
RC1145	7194517	663293	519	-55	270	20	*NSI*			
RC1146	7194499	663281	519	-55	270	20	1	7	6	0.71
RC1147	7194478	663280	520	-55	270	50	0	3	3	0.66
							13	14	1	0.50
							20	**29**	**9**	**0.97**
RC1148	7194460	663282	521	-60	90	31	1	2	1	0.56

Site ID	North MGA	East MGA	RL AHD	Dip	Azimuth	Depth	From	To	Length	Cu %
RC1149	7194460	663267	522	-55	270	55	**6**	**32**	**26**	**1.31**
RC1150	7194442	663256	524	-55	90	49	**0**	**16**	**16**	**1.15**
							27	28	1	0.50
RC1151	7194442	663253	524	-88	90	52	**2**	**47**	**45**	**1.22**
RC1152	7194419	663273	527	-60	270	91	**12**	**34**	**22**	**1.87**
							37	38	1	0.77
RC1153	7194398	663295	529	-60	270	109	13	18	5	0.89
							27	**39**	**12**	**1.14**
							42	46	4	0.70
							57	61	4	0.68
							74	76	2	0.65
RC1154	7194372	663297	535	-55	270	139	23	25	2	2.08
							28	34	6	0.76
							37	38	1	0.61
							44	**54**	**10**	**0.95**
RC1155	7194349	663275	535	-65	90	79	*NSI*			
RC1156	7194349	663269	535	-88	300	123	35	36	1	0.61
							39	45	6	0.78
							69	70	1	1.17
							74	75	1	0.51
RC1157	7194324	663275	534	-60	90	80	*NSI*			
RC1158	7194324	663259	533	-88	90	134	18	23	5	0.58
							34	35	1	0.57
							47	48	1	0.59
							54	**62**	**8**	**1.03**
RC1159	7194373	663269	532	-88	148	111	35	36	1	0.74
							40	**44**	**4**	**1.69**
							50	52	2	0.57
							59	**72**	**13**	**0.89**

NB. For Formal Details of Holes:

RC1103-1104 refer ASX release 27th May 2015- "High Grade Copper in First Drillholes at Horseshoe Lights"
RC1105-1108 refer ASX release 5th June 2015- "Further High Grade Copper in Drilling at Horseshoe Lights"
RC1110-1114 refer ASX release 22th June 2015- "Further Significant Copper in Drilling at Horseshoe Lights"
RC1115-1124 refer ASX release 27th July 2015- "Additional Copper Mineralisation at Horseshoe Lights Project"
RC1127-1135 refer ASX release 11th August 2015- "27 metres @ 3.4% Copper in Horseshoe Lights Drilling"
RC1138-1141* refer ASX release 19th August 2015- "Further High Grade Copper Intersected at Horseshoe Lights" **pXRF preliminary*
RC1138-1140 refer ASX release 3rd September 2015- "27 Metres @2.42% Copper in Horseshoe Lights Drilling"
RC1142-1144 refer ASX release 12th September 2018- "Exploration Update- Horseshoe Lights Project"
RC1145-1159 refer ASX release 13th September 2021- "Horseshoe Lights Phase 1 RC Drilling Programme Completed"

(N.B. -*RC1109 drilled at exploration target outside resource, with NSI)*
(N.B. -*RC1125-1126 not formally reported at the time, with NSI)*
(N.B. -*RC1141 not reported with final assays at the time, reported above)*
(N.B. -*Mineralised intersects in above holes reported prior to 2016 used variable internal dilution and cutoffs- typically >1m>0.25% Cu)*

About Horseshoe Metals Limited

Horseshoe Metals Limited (ASX:HOR) is a copper and gold-focused Company with a package of tenements covering approximately 500km^2 in the highly prospective Peak Hill Mineral Field, located north of Meekatharra in Western Australian and mineral interests in South Australia. The Company manages the Horseshoe Lights Project and the Kumarina Project in Western Australia, and the Glenloth Gold Project in South Australia. The tenements immediately surrounding the Horseshoe Lights Copper-Gold Project are currently part of a Farm In/Joint Venture with Kopore Metals Limited (ASX:KMT) where KMT has recently completed minimum expenditure requirements for the first year of Farm In.

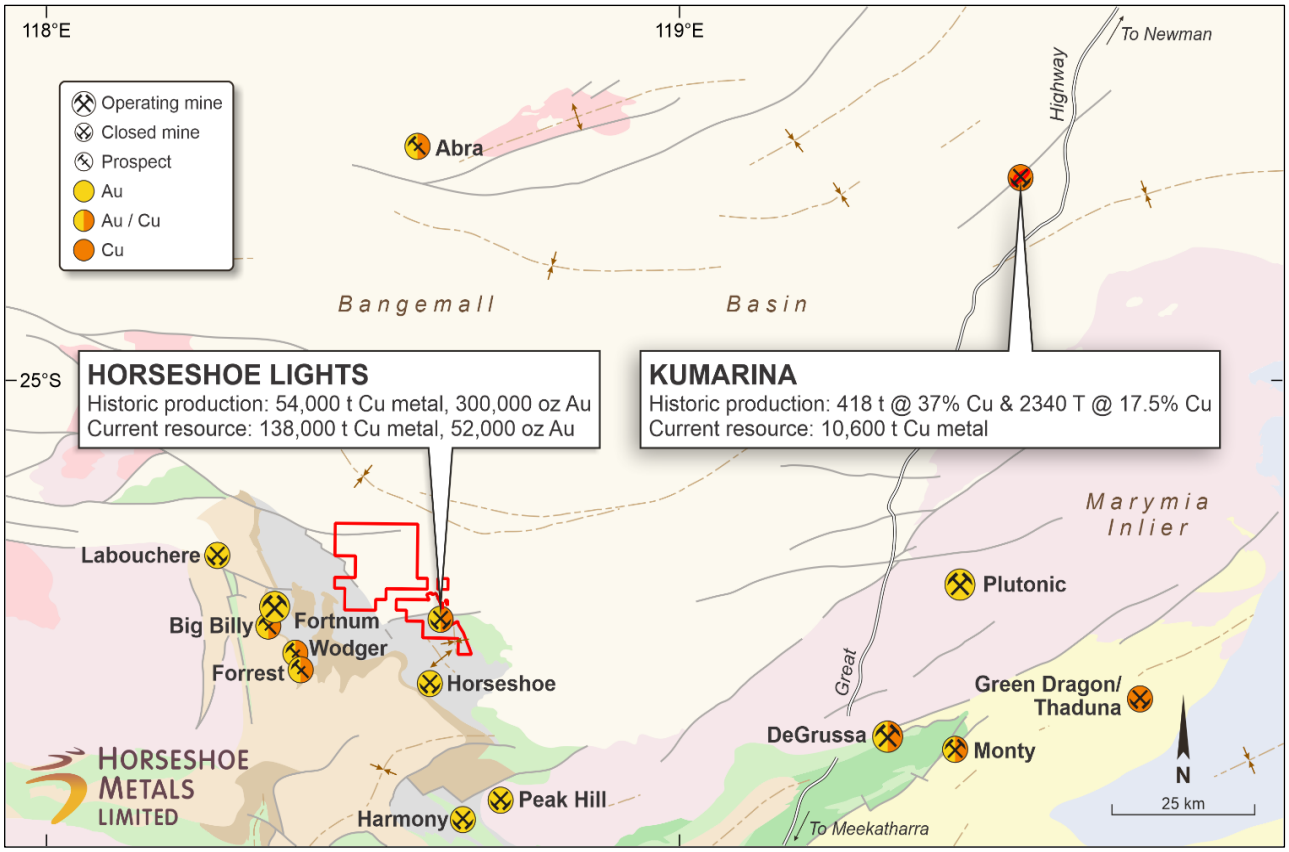

Figure 5: Location of Horseshoe Lights Copper-Gold Project and Kumarina Project in the Murchison region, Western Australia

About the Horseshoe Lights Project

The Horseshoe Lights Project includes the historic open pit of the Horseshoe Lights copper-gold mine which operated up until 1994, producing over 300,000 ounces of gold and 54,000 tonnes of contained copper, including over 110,000 tonnes of Direct Shipping Ore (DSO) which graded between 20-30% copper.

The Horseshoe Lights ore body is interpreted as a deformed Volcanogenic Hosted Massive Sulphide (VMS) deposit that has undergone supergene alteration to generate the gold-enriched and copper-depleted cap that was the target of initial mining. The deposit is hosted by quartz-sericite and quartz-chlorite schists of the Lower Proterozoic Narracoota Formation.

Past mining was focused on the Main Zone, a series of lensoid ore zones, which passed with depth from a gold-rich oxide zone through zones of high-grade chalcocite mineralisation into massive pyrite-chalcopyrite. To the west and east of the Main Zone, copper mineralisation in the Northwest Stringer Zone and Motters Zone consists of veins and disseminations of chalcopyrite and pyrite and their upper oxide copper extensions. Table 4 summarises the total Mineral Resources for the Horseshoe Lights Project as at 31 December 2021

TABLE 4
HORSESHOE LIGHTS PROJECT
SUMMARY OF MINERAL RESOURCES
AS AT 31 December 2021

Location	Category	Tonnes (Mt)	Cu (%)	Au (g/t)	Ag (g/t)	Cu metal (tonnes)	Au metal (oz)	Ag metal (k oz)
In-situ Deposit (0.5% Cu cut-off grade)	*Measured*	*1.73*	*1.04*	*0.0*	*0.5*	*18,000*	*1,900*	*28.8*
	Indicated	*2.43*	*0.95*	*0.0*	*0.7*	*23,200*	*3,400*	*52.2*
	Inferred	*8.69*	*1.01*	*0.1*	*2.6*	*87,400*	*30,700*	*712.4*
	Total	**12.85**	**1.00**	**0.1**	**1.9**	**128,600**	**36,000**	**793.4**
Flotation Tailings	**Inferred**	**1.421**	**0.48**	**0.34**	**6.5**	**6,800**	**15,300**	**294.8**
M15 Stockpiles	**Inferred**	**0.243**	**1.10**	**0.17**	**4.7**	**2,650**	**1,300**	**36.7**
Note: At 0% Cu cut-off grade unless otherwise stated					**TOTAL**	**138,050**	**52,600**	**1,124.9**

The above Mineral Resource Estimates all meet the reporting requirements of the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves".

About the Kumarina Project

The copper deposits at the Kumarina Project were discovered in 1913 and worked intermittently until 1973. The workings extend over nearly 5km as a series of pits, shafts and shallow open cuts. At the main Kumarina Copper Mine, the workings are entirely underground with drives from the main shaft extending for some 200m in the upper levels and for about 100m in the lower levels at a depth of 49m below surface.

Incomplete records post-1960s make it difficult to estimate the total copper production from the workings. However, indications are that the Kumarina Copper Mine was the second largest producer in the Bangemall Basin group of copper mines. Recorded production to the late 1960s is 481t of copper ore at a high-grade of 37.0% Cu and 2,340t at a grade of 17.51% Cu. An initial Mineral Resource Estimate for the Rinaldi deposit was completed by the Company in 2013 (see 30 June 2013 Quarterly Report announced on 31 July 2013). The total Measured, Indicated and Inferred Mineral Resource Estimate as at 31 December 2021 is shown in Table 5 below.

TABLE 5 KUMARINA PROJECT SUMMARY OF MINERAL RESOURCES AS AT 31 December 2021				
Location	**Category**	**Tonnes (t)**	**Cu (%)**	**Cu metal (tonnes)**
Rinaldi Prospect (0.5% Cu cut-off)	*Measured*	*415,000*	*1.46*	*6,100*
	Indicated	*307,000*	*1.16*	*3,500*
	Inferred	*114,000*	*0.9*	*1,000*
	Total	**835,000**	**1.3**	**10,600**

The Mineral Resource Estimate meets the reporting requirements of the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves"

Forward Looking Statements

Horseshoe Metals Limited has prepared this announcement based on information available to it. No representation or warranty, express or implied, is made as to the fairness, accuracy, completeness or correctness of the information, opinions and conclusions contained in this announcement. To the maximum extent permitted by law, none of Horseshoe Metals Limited, its directors, employees or agents, advisers, nor any other person accepts any liability, including, without limitation, any liability arising from fault or negligence on the part of any of them or any other person, for any loss arising from the use of this announcement or its contents or otherwise arising in connection with it. This announcement is not an offer, invitation, solicitation or other recommendation with respect to the subscription for, purchase or sale of any security, and neither this announcement nor anything in it shall form the basis of any contract or commitment whatsoever. This announcement may contain forward-looking statements that are subject to risk factors associated with gold exploration, mining and production businesses. It is believed that the expectations reflected in these statements are reasonable but they may be affected by a variety of variables and changes in underlying assumptions which could cause actual results or trends to differ materially, including but not limited to price fluctuations, actual demand, currency fluctuations, drilling and production results, reserve estimations, loss of market, industry competition, environmental risks, physical risks, legislative, fiscal and regulatory changes, economic and financial market conditions in various countries and regions, political risks, project delay or advancement, approvals and cost estimates.

Competent Persons Statement

The information in this report that relates to the Exploration Results and Mineral Resources at the Horseshoe Lights and Kumarina Projects is based on information reviewed by Mr Craig Hall, who is a member of the Australian Institute of Geoscientists. Mr Hall is a contractor to Horseshoe Metals Limited and has sufficient experience which is relevant to the style of mineralisation and types of deposit under consideration and to the activity he is undertaking to qualify as Competent Persons as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012)'. Mr Hall consents to the inclusion of the data in the form and context in which it appears.

The information in this report that relates to the Horseshoe Lights Project In-situ Mineral Resources is based on information originally compiled by Mr Dmitry Pertel, an employee of CSA Global Pty Ltd, and subsequently reviewed by Mr Hall. This information was originally issued in the Company's ASX announcement "40% increase in Copper Resource at Horseshoe Lights Copper/Gold Project", released to the ASX on 5 June 2013, and first disclosed under the JORC Code 2004. This information was subsequently disclosed under the JORC Code 2012 in the Company's ASX release "Quarterly Report Period Ended 30 June 2013", released on 31 July 2013. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements. The Company confirms that the form and context in which the findings are presented have not materially modified from the original market announcements.

The information in this report that relates to the Horseshoe Lights Project surface stockpile Mineral Resources is based on information compiled by a previous employee of Horseshoe Metals Limited and subsequently reviewed by Mr Hall. The information was previously issued in announcements released to the ASX on 26 February 2015 and 9 March 2015. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements. The Company confirms that the form and context in which the findings are presented have not materially modified from the original market announcements.

The information in this report that relates to the Kumarina Project (Rinaldi Prospect) Mineral Resources is based on information compiled by or under the supervision of Mr Robert Spiers, an independent consultant to Horseshoe Metals Limited and a then full-time employee and Director of H&S Consultants Pty Ltd (formerly Hellman & Schofield Pty Ltd), and reviewed by Mr Hall. The information was originally issued in the Company's ASX announcement "Horseshoe releases Maiden Mineral Resource Estimate for Kumarina", released to the ASX on 4 March 2013, and first disclosed under the JORC Code 2004. This information was subsequently disclosed under the JORC Code 2012 in the Company's ASX release "Quarterly Report Period Ended 30 June 2013", released on 31 July 2013. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements. The Company confirms that the form and context in which the findings are presented have not materially modified from the original market announcements

Appendix 1: Mineral Resource Results (All categories) for Horseshoe Lights Deposit- At Cu% cut-offs of 0.00; 0.25; 0.5; 0.6; 0.7; 0.8; 0.9; 1.0; 1.2; 1.5 and 2.0%)

All taken from CSA R245.2013 Technical Report for Horseshoe Metals Limited dated 21st June 2013

Mineral Resource Results (All categories) for Horseshoe Lights Deposit- At Cu% cut-off of 0.00% Cu (Global- uses wireframes based on natural cut-off of 0.18% Cu)

Cut Off Cu, %	Zone	Category	Volume M m³	Tonnes Mt	SG t/m³	Cu %	Au g/t	Ag g/t	Cu t	Au Oz	Ag Oz
0.00	Fresh	Measured	1.16	3.01	2.60	0.643	0.024	0.46	19,319	2,278	44,236
		Indicated	2.35	6.11	2.61	0.515	0.034	0.56	31,466	6,646	110,325
		Inferred	9.11	24.03	2.64	0.529	0.080	1.60	127,098	61,602	1,239,189
		Total Fresh:	*12.61*	*33.15*	*2.63*	*0.537*	*0.066*	*1.31*	*177,883*	*70,526*	*1,393,751*
	Transition	Measured	0.12	0.26	2.20	0.754	0.044	0.68	1,949	363	5,660
		Indicated	0.27	0.59	2.20	0.632	0.042	0.44	3,702	789	8,317
		Inferred	0.20	0.45	2.20	0.574	0.043	0.54	2,567	623	7,716
		Total Transition:	*0.59*	*1.29*	*2.20*	*0.636*	*0.043*	*0.52*	*8,218*	*1,775*	*21,693*
	Oxide	Measured	0.19	0.37	2.00	0.773	0.067	0.45	2,881	799	5,411
		Indicated	0.42	0.85	2.00	0.385	0.035	0.32	3,256	955	8,828
		Inferred	0.41	0.81	2.00	0.352	0.038	0.36	2,861	991	9,530
		Total Oxide:	*1.02*	*2.03*	*2.00*	*0.443*	*0.042*	*0.36*	*8,998*	*2,745*	*23,769*
	Measured		1.46	3.64	2.49	0.664	0.029	0.47	24,149	3,440	55,307
	Indicated		3.04	7.54	2.49	0.509	0.035	0.53	38,424	8,391	127,470
	Inferred		9.72	25.30	2.60	0.524	0.078	1.54	132,526	63,215	1,256,434
	Total:		14.22	36.48	2.57	0.535	0.064	1.23	195,099	75,045	1,439,212

Mineral Resource Results (All categories) for Horseshoe Lights Deposit- At Cu% cut-off of 0.25% Cu

Cut Off Cu, %	Zone	Category	Volume M m³	Tonnes Mt	SG t/m³	Cu %	Au g/t	Ag g/t	Cu t	Au Oz	Ag Oz
0.25	Fresh	Measured	1.00	2.61	2.60	0.711	0.024	0.46	18,540	2,034	38,924
		Indicated	1.82	4.75	2.61	0.610	0.037	0.61	28,973	5,586	92,764
		Inferred	6.36	16.87	2.65	0.682	0.086	1.91	114,948	46,603	1,034,288
		Total Fresh:	*9.19*	*24.22*	*2.64*	*0.671*	*0.070*	*1.50*	*162,461*	*54,223*	*1,165,976*
	Transition	Measured	0.10	0.21	2.20	0.876	0.047	0.68	1,858	319	4,653
		Indicated	0.20	0.44	2.20	0.773	0.042	0.45	3,438	606	6,392
		Inferred	0.15	0.33	2.20	0.716	0.039	0.59	2,356	411	6,241
		Total Transition:	*0.45*	*0.99*	*2.20*	*0.776*	*0.042*	*0.55*	*7,651*	*1,336*	*17,286*
	Oxide	Measured	0.15	0.31	2.00	0.893	0.069	0.47	2,747	684	4,617
		Indicated	0.27	0.53	2.00	0.512	0.039	0.34	2,724	664	5,731
		Inferred	0.25	0.50	2.00	0.458	0.042	0.38	2,307	687	6,205
		Total Oxide:	*0.67*	*1.34*	*2.00*	*0.579*	*0.047*	*0.38*	*7,779*	*2,036*	*16,553*
	Measured		1.25	3.13	2.50	0.740	0.030	0.48	23,145	3,037	48,195
	Indicated		2.29	5.73	2.50	0.613	0.037	0.57	35,134	6,856	104,887
	Inferred		6.76	17.70	2.62	0.676	0.084	1.84	119,612	47,702	1,046,733
	Total:		10.31	26.55	2.58	0.670	0.067	1.41	177,891	57,595	1,199,815

Mineral Resource Results (All categories) for Horseshoe Lights Deposit- At Cu% cut-off of 0.50% Cu

Cut Off Cu, %	Zone	Category	Volume M m³	Tonnes Mt	SG t/m³	Cu %	Au g/t	Ag g/t	Cu t	Au Oz	Ag Oz
0.50	Fresh	Measured	0.55	1.42	2.60	0.996	0.027	0.50	14,186	1,244	23,086
		Indicated	0.79	2.06	2.61	0.932	0.042	0.71	19,160	2,801	46,718
		Inferred	3.14	8.42	2.68	1.006	0.112	2.61	84,725	30,387	707,710
		Total Fresh:	*4.47*	*11.90*	*2.66*	*0.992*	*0.090*	*2.03*	*118,071*	*34,431*	*777,514*
	Transition	Measured	0.05	0.12	2.20	1.276	0.057	0.74	1,536	220	2,863
		Indicated	0.11	0.23	2.20	1.159	0.052	0.48	2,678	383	3,533
		Inferred	0.07	0.15	2.20	1.154	0.030	0.60	1,684	143	2,828
		Total Transition:	*0.23*	*0.50*	*2.20*	*1.186*	*0.047*	*0.58*	*5,898*	*746*	*9,224*
	Oxide	Measured	0.09	0.18	2.00	1.251	0.076	0.48	2,315	453	2,826
		Indicated	0.07	0.15	2.00	0.942	0.040	0.42	1,387	188	2,002
		Inferred	0.06	0.12	2.00	0.836	0.046	0.51	975	171	1,900
		Total Oxide:	*0.22*	*0.45*	*2.00*	*1.042*	*0.056*	*0.47*	*4,677*	*812*	*6,728*
	Measured		0.69	1.73	2.49	1.043	0.034	0.52	18,036	1,917	28,775
	Indicated		0.97	2.43	2.52	0.954	0.043	0.67	23,225	3,372	52,253
	Inferred		3.26	8.69	2.66	1.006	0.110	2.55	87,385	30,700	712,438
	Total:		4.92	12.85	2.61	1.001	0.087	1.92	128,646	35,990	793,466

Mineral Resource Results (All categories) for Horseshoe Lights Deposit- At Cu% cut-off of 0.60% Cu

Cut Off Cu, %	Zone	Category	Volume M m³	Tonnes Mt	SG t/m³	Cu %	Au g/t	Ag g/t	Cu t	Au Oz	Ag Oz
0.60	Fresh	Measured	0.42	1.10	2.60	1.131	0.029	0.53	12,400	1,006	18,628
		Indicated	0.58	1.51	2.62	1.074	0.044	0.73	16,160	2,153	35,397
		Inferred	2.40	6.48	2.70	1.143	0.124	2.92	74,105	25,786	608,914
		Total Fresh:	*3.40*	*9.08*	*2.67*	*1.130*	*0.099*	*2.27*	*102,665*	*28,944*	*662,939*
	Transition	Measured	0.05	0.10	2.20	1.399	0.059	0.74	1,441	196	2,455
		Indicated	0.09	0.19	2.20	1.286	0.052	0.49	2,462	317	3,045
		Inferred	0.06	0.13	2.20	1.245	0.031	0.62	1,583	128	2,545
		Total Transition:	*0.19*	*0.42*	*2.20*	*1.301*	*0.047*	*0.59*	*5,486*	*641*	*8,045*
	Oxide	Measured	0.08	0.15	2.00	1.409	0.074	0.47	2,128	361	2,282
		Indicated	0.05	0.10	2.00	1.153	0.040	0.47	1,108	125	1,460
		Inferred	0.04	0.07	2.00	1.027	0.047	0.66	724	106	1,491
		Total Oxide:	*0.16*	*0.32*	*2.00*	*1.247*	*0.058*	*0.51*	*3,960*	*592*	*5,232*
	Measured		0.54	1.35	2.48	1.182	0.036	0.54	15,969	1,563	23,366
	Indicated		0.71	1.79	2.52	1.101	0.045	0.69	19,729	2,595	39,902
	Inferred		2.49	6.68	2.68	1.144	0.121	2.85	76,412	26,019	612,949
	Total:		3.75	9.82	2.62	1.141	0.096	2.14	112,110	30,177	676,217

Mineral Resource Results (All categories) for Horseshoe Lights Deposit- At Cu% cut-off of 0.70% Cu

Cut Off Cu, %	Zone	Category	Volume M m³	Tonnes Mt	SG t/m³	Cu %	Au g/t	Ag g/t	Cu t	Au Oz	Ag Oz
0.70	Fresh	Measured	0.33	0.85	2.60	1.270	0.029	0.53	10,802	800	14,635
		Indicated	0.43	1.13	2.62	1.216	0.047	0.76	13,719	1,701	27,731
		Inferred	1.88	5.11	2.71	1.277	0.136	3.24	65,198	22,370	531,514
		Total Fresh:	*2.64*	*7.09*	*2.68*	*1.266*	*0.109*	*2.52*	*89,719*	*24,871*	*573,880*
	Transition	Measured	0.04	0.09	2.20	1.514	0.062	0.69	1,354	178	1,991
		Indicated	0.07	0.16	2.20	1.399	0.052	0.50	2,274	272	2,634
		Inferred	0.05	0.11	2.20	1.318	0.031	0.65	1,493	115	2,368
		Total Transition:	*0.17*	*0.37*	*2.20*	*1.402*	*0.048*	*0.60*	*5,121*	*565*	*6,993*
	Oxide	Measured	0.06	0.12	2.00	1.585	0.076	0.45	1,942	301	1,776
		Indicated	0.04	0.08	2.00	1.252	0.040	0.50	1,008	104	1,307
		Inferred	0.02	0.05	2.00	1.212	0.038	0.79	577	59	1,210
		Total Oxide:	*0.13*	*0.25*	*2.00*	*1.407*	*0.058*	*0.53*	*3,527*	*463*	*4,293*
	Measured		0.43	1.06	2.48	1.327	0.037	0.54	14,099	1,279	18,402
	Indicated		0.54	1.37	2.52	1.239	0.047	0.72	17,001	2,078	31,672
	Inferred		1.96	5.27	2.69	1.277	0.133	3.16	67,267	22,543	535,092
	Total:		2.93	7.70	2.63	1.277	0.105	2.36	98,368	25,900	585,165

Mineral Resource Results (All categories) for Horseshoe Lights Deposit- At Cu% cut-off of 0.80% Cu

Cut Off Cu, %	Zone	Category	Volume M m³	Tonnes Mt	SG t/m³	Cu %	Au g/t	Ag g/t	Cu t	Au Oz	Ag Oz
0.80	Fresh	Measured	0.26	0.68	2.60	1.405	0.030	0.52	9,497	657	11,334
		Indicated	0.32	0.85	2.62	1.368	0.048	0.80	11,648	1,323	21,996
		Inferred	1.51	4.12	2.72	1.404	0.148	3.55	57,811	19,540	469,837
		Total Fresh:	*2.10*	*5.64*	*2.69*	*1.399*	*0.119*	*2.77*	*78,956*	*21,520*	*503,166*
	Transition	Measured	0.03	0.08	2.20	1.648	0.066	0.63	1,253	161	1,534
		Indicated	0.06	0.14	2.20	1.508	0.054	0.52	2,099	240	2,336
		Inferred	0.05	0.10	2.20	1.398	0.031	0.68	1,387	100	2,153
		Total Transition:	*0.14*	*0.31*	*2.20*	*1.507*	*0.049*	*0.60*	*4,739*	*500*	*6,024*
	Oxide	Measured	0.05	0.09	2.00	1.855	0.077	0.43	1,721	228	1,275
		Indicated	0.03	0.06	2.00	1.373	0.042	0.52	890	88	1,084
		Inferred	0.02	0.04	2.00	1.304	0.036	0.85	517	46	1,081
		Total Oxide:	*0.10*	*0.20*	*2.00*	*1.586*	*0.057*	*0.54*	*3,128*	*362*	*3,440*
	Measured		0.34	0.84	2.48	1.477	0.039	0.52	12,471	1,046	14,143
	Indicated		0.42	1.06	2.51	1.387	0.049	0.75	14,637	1,650	25,416
	Inferred		1.58	4.26	2.70	1.403	0.144	3.46	59,714	19,686	473,071
	Total:		2.34	6.16	2.63	1.410	0.113	2.59	86,822	22,382	512,630

Mineral Resource Results (All categories) for Horseshoe Lights Deposit- At Cu% cut-off of 0.90% Cu

Cut Off Cu, %	Zone	Category	Volume M m³	Tonnes Mt	SG t/m³	Cu %	Au g/t	Ag g/t	Cu t	Au Oz	Ag Oz
0.90	Fresh	Measured	0.21	0.53	2.60	1.553	0.030	0.51	8,296	518	8,680
		Indicated	0.25	0.65	2.63	1.532	0.048	0.86	9,911	998	17,881
		Inferred	1.21	3.30	2.73	1.542	0.160	3.83	50,894	16,969	406,075
		Total Fresh:	*1.66*	*4.48*	*2.70*	*1.542*	*0.128*	*3.00*	*69,101*	*18,484*	*432,636*
	Transition	Measured	0.03	0.07	2.20	1.760	0.069	0.60	1,173	147	1,285
		Indicated	0.05	0.12	2.20	1.609	0.054	0.53	1,942	209	2,054
		Inferred	0.04	0.09	2.20	1.486	0.031	0.71	1,270	84	1,950
		Total Transition:	*0.12*	*0.27*	*2.20*	*1.607*	*0.050*	*0.60*	*4,385*	*441*	*5,289*
	Oxide	Measured	0.04	0.08	2.00	2.042	0.078	0.42	1,599	196	1,048
		Indicated	0.03	0.05	2.00	1.492	0.044	0.55	788	74	934
		Inferred	0.02	0.03	2.00	1.447	0.036	0.92	440	35	896
		Total Oxide:	*0.08*	*0.16*	*2.00*	*1.750*	*0.059*	*0.55*	*2,827*	*306*	*2,877*
	Measured		0.27	0.68	2.47	1.630	0.039	0.50	11,068	861	11,013
	Indicated		0.33	0.82	2.51	1.541	0.049	0.79	12,641	1,281	20,869
	Inferred		1.26	3.42	2.71	1.540	0.156	3.72	52,604	17,089	408,920
	Total:		1.86	4.92	2.64	1.552	0.122	2.79	76,313	19,230	440,802

Mineral Resource Results (All categories) for Horseshoe Lights Deposit- At Cu% cut-off of 1.00% Cu

Cut Off Cu, %	Zone	Category	Volume M m³	Tonnes Mt	SG t/m³	Cu %	Au g/t	Ag g/t	Cu t	Au Oz	Ag Oz
1.00	Fresh	Measured	0.17	0.44	2.60	1.673	0.030	0.49	7,445	432	7,048
		Indicated	0.19	0.49	2.63	1.715	0.049	0.88	8,456	781	14,011
		Inferred	0.97	2.67	2.75	1.683	0.173	4.17	44,909	14,886	358,156
		Total Fresh:	*1.33*	*3.61*	*2.71*	*1.686*	*0.139*	*3.27*	*60,810*	*16,098*	*379,215*
	Transition	Measured	0.03	0.06	2.20	1.849	0.071	0.58	1,109	137	1,113
		Indicated	0.05	0.11	2.20	1.669	0.054	0.53	1,848	193	1,890
		Inferred	0.03	0.08	2.20	1.560	0.030	0.71	1,171	73	1,718
		Total Transition:	*0.11*	*0.25*	*2.20*	*1.680*	*0.051*	*0.60*	*4,128*	*404*	*4,721*
	Oxide	Measured	0.04	0.07	2.00	2.142	0.079	0.42	1,536	182	963
		Indicated	0.02	0.05	2.00	1.586	0.046	0.56	714	66	808
		Inferred	0.01	0.03	2.00	1.533	0.031	0.98	397	26	821
		Total Oxide:	*0.07*	*0.14*	*2.00*	*1.856*	*0.060*	*0.56*	*2,647*	*275*	*2,591*
	Measured		0.23	0.58	2.46	1.750	0.041	0.49	10,090	751	9,124
	Indicated		0.26	0.65	2.50	1.698	0.050	0.80	11,018	1,040	16,709
	Inferred		1.02	2.77	2.72	1.678	0.168	4.05	46,477	14,985	360,694
	Total:		1.51	4.00	2.64	1.692	0.131	3.01	67,585	16,777	386,527

Mineral Resource Results (All categories) for Horseshoe Lights Deposit- At Cu% cut-off of 1.20% Cu

Cut Off Cu, %	Zone	Category	Volume M m³	Tonnes Mt	SG t/m³	Cu %	Au g/t	Ag g/t	Cu t	Au Oz	Ag Oz
1.20	Fresh	Measured	0.12	0.31	2.60	1.936	0.030	0.46	5,962	301	4,555
		Indicated	0.12	0.33	2.65	2.038	0.050	0.98	6,634	520	10,283
		Inferred	0.64	1.77	2.78	1.982	0.207	4.95	35,085	11,785	281,908
		Total Fresh:	*0.88*	*2.40*	*2.73*	*1.984*	*0.163*	*3.84*	*47,681*	*12,606*	*296,746*
	Transition	Measured	0.02	0.04	2.20	2.128	0.079	0.58	931	111	822
		Indicated	0.04	0.08	2.20	1.865	0.055	0.54	1,540	145	1,431
		Inferred	0.02	0.05	2.20	1.734	0.028	0.73	937	49	1,261
		Total Transition:	*0.08*	*0.18*	*2.20*	*1.889*	*0.053*	*0.61*	*3,407*	*305*	*3,514*
	Oxide	Measured	0.03	0.06	2.00	2.311	0.080	0.40	1,426	159	789
		Indicated	0.02	0.03	2.00	1.805	0.046	0.59	559	46	589
		Inferred	0.01	0.02	2.00	1.799	0.028	1.10	282	14	553
		Total Oxide:	*0.05*	*0.11*	*2.00*	*2.092*	*0.063*	*0.55*	*2,267*	*219*	*1,932*
	Measured		0.17	0.41	2.44	2.012	0.043	0.46	8,318	570	6,166
	Indicated		0.18	0.44	2.49	1.989	0.050	0.87	8,733	711	12,304
	Inferred		0.67	1.84	2.75	1.973	0.200	4.80	36,304	11,848	283,722
	Total:		1.02	2.69	2.65	1.982	0.152	3.49	53,355	13,130	302,192

Mineral Resource Results (All categories) for Horseshoe Lights Deposit- At Cu% cut-off of 1.30% Cu

Cut Off Cu, %	Zone	Category	Volume M m³	Tonnes Mt	SG t/m³	Cu %	Au g/t	Ag g/t	Cu t	Au Oz	Ag Oz
1.30	Fresh	Measured	0.10	0.25	2.60	2.091	0.031	0.45	5,253	248	3,630
		Indicated	0.10	0.27	2.64	2.187	0.050	1.02	5,993	439	8,983
		Inferred	0.52	1.45	2.79	2.141	0.225	5.40	31,149	10,545	252,494
		Total Fresh:	*0.72*	*1.98*	*2.74*	*2.141*	*0.176*	*4.16*	*42,394*	*11,232*	*265,107*
	Transition	Measured	0.02	0.04	2.20	2.229	0.080	0.59	875	101	750
		Indicated	0.03	0.07	2.20	1.949	0.055	0.54	1,414	129	1,258
		Inferred	0.02	0.05	2.20	1.822	0.028	0.73	826	41	1,063
		Total Transition:	*0.07*	*0.16*	*2.20*	*1.983*	*0.054*	*0.61*	*3,116*	*271*	*3,072*
	Oxide	Measured	0.03	0.06	2.00	2.389	0.082	0.39	1,374	151	721
		Indicated	0.01	0.03	2.00	1.910	0.048	0.57	497	40	479
		Inferred	0.01	0.02	2.00	1.819	0.028	1.12	274	13	542
		Total Oxide:	*0.05*	*0.10*	*2.00*	*2.176*	*0.065*	*0.55*	*2,145*	*205*	*1,743*
	Measured		0.14	0.35	2.43	2.156	0.045	0.46	7,502	500	5,101
	Indicated		0.15	0.37	2.49	2.121	0.051	0.90	7,903	609	10,721
	Inferred		0.55	1.52	2.76	2.129	0.218	5.22	32,249	10,599	254,099
	Total:		0.84	2.24	2.65	2.132	0.163	3.76	47,655	11,708	269,921

Mineral Resource Results (All categories) for Horseshoe Lights Deposit- At Cu% cut-off of 1.50% Cu

Cut Off Cu, %	Zone	Category	Volume M m³	Tonnes Mt	SG t/m³	Cu %	Au g/t	Ag g/t	Cu t	Au Oz	Ag Oz
1.50	Fresh	Measured	0.07	0.19	2.60	2.335	0.031	0.41	4,335	186	2,430
		Indicated	0.07	0.19	2.64	2.514	0.051	1.03	4,883	318	6,409
		Inferred	0.36	1.01	2.81	2.476	0.263	6.30	24,913	8,501	203,702
		Total Fresh:	*0.50*	*1.39*	*2.75*	*2.462*	*0.202*	*4.77*	*34,130*	*9,005*	*212,541*
	Transition	Measured	0.01	0.03	2.20	2.480	0.080	0.62	747	78	597
		Indicated	0.02	0.05	2.20	2.184	0.056	0.56	1,116	92	917
		Inferred	0.01	0.03	2.20	1.996	0.028	0.71	637	29	733
		Total Transition:	*0.05*	*0.11*	*2.20*	*2.210*	*0.055*	*0.62*	*2,500*	*199*	*2,247*
	Oxide	Measured	0.03	0.05	2.00	2.529	0.085	0.38	1,278	138	613
		Indicated	0.01	0.01	2.00	2.338	0.056	0.59	332	26	270
		Inferred	0.01	0.01	2.00	1.935	0.028	1.13	229	11	432
		Total Oxide:	*0.04*	*0.08*	*2.00*	*2.402*	*0.071*	*0.53*	*1,839*	*174*	*1,315*
	Measured		0.11	0.27	2.41	2.388	0.047	0.43	6,360	402	3,640
	Indicated		0.10	0.26	2.50	2.440	0.052	0.91	6,330	436	7,595
	Inferred		0.38	1.05	2.77	2.455	0.253	6.07	25,779	8,540	204,867
	Total:		0.59	1.58	2.66	2.441	0.185	4.27	38,469	9,378	216,103

Mineral Resource Results (All categories) for Horseshoe Lights Deposit- At Cu% cut-off of 2.00% Cu

Cut Off Cu, %	Zone	Category	Volume M m³	Tonnes Mt	SG t/m³	Cu %	Au g/t	Ag g/t	Cu t	Au Oz	Ag Oz
2.00	Fresh	Measured	0.04	0.10	2.60	2.921	0.031	0.37	2,818	97	1,152
		Indicated	0.04	0.11	2.63	3.151	0.048	0.99	3,454	168	3,505
		Inferred	0.17	0.49	2.84	3.291	0.384	8.91	16,131	6,047	140,333
		Total Fresh:	*0.25*	*0.70*	*2.77*	*3.218*	*0.282*	*6.48*	*22,403*	*6,312*	*144,990*
	Transition	Measured	0.01	0.02	2.20	2.996	0.091	0.57	557	54	341
		Indicated	0.01	0.02	2.20	3.069	0.055	0.61	560	32	358
		Inferred	0.00	0.01	2.20	2.598	0.028	0.63	254	9	197
		Total Transition:	*0.02*	*0.05*	*2.20*	*2.941*	*0.064*	*0.60*	*1,371*	*95*	*895*
	Oxide	Measured	0.02	0.03	2.00	2.941	0.091	0.40	988	99	431
		Indicated	0.00	0.00	2.00	3.774	0.058	0.61	172	8	89
		Inferred	0.00	0.00	2.00	3.197	0.024	0.88	60	1	52
		Total Oxide:	*0.02*	*0.04*	*2.00*	*3.048*	*0.084*	*0.45*	*1,219*	*109*	*573*
	Measured		0.06	0.15	2.38	2.935	0.052	0.40	4,362	250	1,924
	Indicated		0.05	0.13	2.54	3.161	0.049	0.93	4,186	208	3,952
	Inferred		0.18	0.50	2.82	3.277	0.375	8.71	16,445	6,057	140,582
	Total:		0.29	0.78	2.67	3.193	0.259	5.82	24,993	6,515	146,458

Note: All figures in the tables are rounded, and therefore the total sums might not be the direct sum of the input figures (e.g. at 0.33 + 0.33 = 0.66, while rounding will make 0.3 + 0.3 = 0.7)

JORC CODE, 2012 EDITION (FROM ORIGINAL JULY 2013 RELEASE)

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.*	• Historical data: All activities completed by Horseshoe Gold Mine Pty Ltd which was a wholly-owned subsidiary of Barrack Mines Ltd between 1983-91 and Sabminco NL between 1992-1995. Barrack Mines Ltd drilled 43 diamond holes for 15,353m, 638 Reverse Circulation holes for 55,343m and 19 channel samples for 520m between 1983 and 1990. • Sabminco NL drilled 14 HQ & NQ diamond holes for 2672.25m and 108 Reverse Circulation holes for 9,244m between 1992 and 1993. Initial hole spacing was on a nominal spacing of 50 x 50m with infill as required in the pit area. • Drillhole deviation resulted in irregular drill spacing as exploration and resource definition progressed. • Earlier drilling prior to 1983 has not been used. • The majority of holes are orientated perpendicular to mineralisation which is mainly toward mine grid east and north east at various inclinations. • Horseshoe Metals: Samples have been collected from 94 Reverse Circulation Horseshoe Metals holes for a total of 16,059m and 7 diamond drill holes and tails for a total of 1776m. RC drill spacing north of the existing pit varies between 50 x 50m in exploration areas and a nominal 25 x 25m pattern where possible in resource areas. All samples from the first 2 phases of RC drilling up until RC1026 were spear sampled and composited over 3m intervals. All subsequent Reverse Circulation 1m split samples have initially been analysed for copper with a handheld Delta XRF instrument to determine sample category i.e. 1m split or 3m or 4m composites.
	• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*	• Historical data: All drill hole collar locations were surveyed by mine surveyors and the majority of diamond drill holes included downhole surveys using an Eastman camera. Reverse Circulation holes were generally not surveyed down hole. • Where possible historical open holes have recently been surveyed for collar location and down hole by contract surveyors. • Representative reverse circulation samples were collected using mine practices deemed appropriate at the time and logged for lithological information. • Diamond core samples were logged for lithological, structural and geotechnical information (in some cases). • Horseshoe Metals: Certified standard and blanks samples were inserted into the sample sequences in according to Horseshoe Metals QAQC procedures. Duplicate samples for RC and diamond samples were collected to check repeatability of sampling and variability or nugget effect for tungsten mineralisation. Results from this QAQC sampling were considered acceptable. • All Horseshoe Metals drillhole collar locations have been surveyed by licensed contractors using RTK DGPS system and drilling contractors provided downhole survey information using single shot digital cameras. Downhole survey contractors have resurveyed some open holes using gyro and multishot systems. • The Delta handheld XRF was calibrated according to manufacturer's standard and also randomly tested against supplied standards from Geostats Pty Ltd.
	• *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*	• Historical data: Reverse Circulation samples were collected mainly on 1m & 2m intervals and prepared for assaying at the onsite laboratory of Horseshoe Gold Mine Pty Ltd, and/or at accredited laboratories. • Diamond core is HQ, NQ and BQ was mainly half cut sampled on geological intervals (0.1m to 3.1m) and assayed using the same techniques as the reverse circulation samples.

Criteria	JORC Code explanation	Commentary
	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.	• Horseshoe Metals: Horseshoe Metals samples were submitted to three accredited laboratories: Genalysis, Labwest and Quantum Analytical Services (QAS). The Copper assay is derived using a mixed acid digest of nitric, hydrofluoric, perchloric and hydrochloric acids on 0.2g of sample and analysed using ICP Optical Emission Spectrophotometry. This method is considered appropriate and effective for this style of mineralisation. • Horseshoe Metals RC samples were riffle split from a regularly cleaned cyclone and split into a calico bag and a plastic green bag on a 1:7 ratio. Samples from the first 2 phases of RC drilling up until RC1026 were spear sampled and composited over 3m intervals. Any significant composite assay value was re-split using the original 1m calico bag and subsequently re- assayed. All other 1m split samples were initially analysed for copper with a field portable Delta XRF instrument to determine sample category i.e. 1m split or 3m or 4m composites. • All Horseshoe Metals diamond core was recovered from the drillhole and boxed into 1 metre long plastic core trays at the drill site. The core trays can hold up to 4-5 m of core depending on the diameter.
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).*	• Historical data: With reference to the historical database Barrack Mines Ltd and Sabminco NL used 16 rotary air blast (RAB) holes, 756 reverse circulation (RC) and 57 diamond holes for resource definition and exploration. • No formal drilling reports are available outlining details of RC drill programs during the mining period 1983-1994 but conversations with original mine personnel suggest that industry standard practices were employed during the mining period 1983-1994. • Diamond drilling is HQ, NQ and BQ core with the majority using Reverse Circulation pre-collars to various depths. Only alpha angles were recorded in geological logs. • Horseshoe Metals; A total of 94 Reverse Circulation holes for 16,059m and 7 diamond drill holes, including 3 diamond tails for 1111.6m were used in the resource calculation. The four diamond holes from surface totalled 1111.6m of HQ diameter core and 5.8m of NQ core. The diamond tails totalled 196.3m of which 39.5m was HQ diameter core and 156.8m of NQ diameter core. Diamond rigs use hydraulic power wireless drilling methods with three and six metre runs.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.*	• Historical data: No formal recovery technique is recorded for RC or RAB drilling by either Barrack Mines Ltd or Sabminco NL. • Diamond core recovery statistics are recorded in hard copy for the majority of historical diamond holes. No formal assessment of core recovery has been made to date. • Horseshoe Metals: RC recovery for Horseshoe holes was visually assessed, recorded on drill logs and considered to be acceptable within the mineralized zones. • Diamond core recovery for Horseshoe Metals holes is logged and recorded in the database. No significant core loss issue exists. The average core recovery is 97.4%..
	• *Measures taken to maximise sample recovery and ensure representative nature of the samples.*	• Historical data: No formal report or information is available but conversations with original mine personnel suggest that industry standard practices were employed during the mining period 1984-1995. • Horseshoe Metals: Diamond core for Horseshoe Metal holes was reconstructed into continuous runs against the depth marked on the core blocks. • RC samples were visually checked for recovery, moisture and contamination. A cyclone and splitter were used to provide a uniform sample and these were routinely cleaned. The drill contractor blew out the hole at the beginning of each drill rod to remove excess water and maintain dry samples.
	• *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Historical data: The potential for sample bias when considering the chalcocite ore within and directly beneath the existing pit was high due to the texture of the mineralisation and high water flows in this area. This manifested itself in smeared reverse circulation drilling and poor recoveries from diamond core as well as poor reconciliation during mining. As a result all reverse circulation samples suspected to be contaminated have been removed from the current resource estimation.

Criteria	JORC Code explanation	Commentary
		• Horseshoe Metals: Sample Recovery for diamond holes is generally high (97.4%). Ground conditions for RC drilling were good and drilling returned consistent size samples. Reverse circulation and diamond core recoveries are high enough to preclude the potential for sample bias.
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.*	• Historical data: All reverse circulation and diamond drilling was logged to a level of detail considered sufficient at the time of mining. However, the nature of deposit that has been subject to strong weathering and alteration makes identification of stratigraphical units very difficult. The lack of an early stratigraphical interpretation model and limited understanding of the deposit style has also has caused inconsistency in the logging by various geologists. As a consequence, only the overlying sediments and underlying shale and dolerite have been logged according to their primary rock type. Barrack Mines Ltd and Sabminco NL used similar mine-specific geological codes to describe the geological units. A metamorphic and alteration methodology was used to describe the volcanic stratigraphy but interpretation of the various descriptions is very difficult. • Horseshoe Metals: Logging of Horseshoe Metals reverse circulation drilling identifies all aspects of lithology, colour, weathering, texture, alteration and mineralisation. All primary recorded on site data was directly imported into a drill hole database and checked against the original data. During logging part of the RC sample was sieved, logged and placed in RC chip trays. The logging also includes references to wet samples in the comments. All reverse circulation samples have been photographed in wet form and the chip trays have been retained for physical inspection onsite or in the Perth office. • Original logging of historical diamond core described lithology, colour and mineralisation content as well as some geotechnical data including core recovery, RQD data and alpha angle measurements. Approximately 10% of the original diamond holes in areas outside the existing pit have been re-logged and photographed so far. Diamond core for Horseshoe Metals holes was logged for recovery and RQD. Information on structure, lithology and alteration zones was recorded. Diamond core trays are stored on site for future reference. • All drill data is digitally captured and stored in a central database.
	• *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.*	• Historical data: Original logging of reverse circulation and diamond core describes lithology, colour and mineralisation content only in handwritten form on hard copies. • Approximately 10% of the original diamond holes in areas outside the existing pit have been re-logged and photographed so far. • Horseshoe Metals: Logging of all samples includes lithology, colour, weathering, mineralogy and mineralisation for holes. All reverse circulation samples have been photographed in chip trays in wet form and all diamond core trays have been photographed in dry and wet form.
	• *The total length and percentage of the relevant intersections logged.*	• The entire length of all Horseshoe Metals RC and diamond holes for 100% of the drilling in the database was logged in full.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.*	• No All diamond core sampled intervals were half core cut for HQ, NQ and BQ diameter.
	• *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.*	• In this instance dry samples were collected using a cyclone and split with a Jones riffle splitter. Wet samples were collected using a conventional revolving wet splitter.
	• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*	• Historical data: No formal report or information is available but conversations with original mine personnel suggest that industry standard practices were employed during the mining period 1984-1995. • Horseshoe Metals: The numbered calico samples bags collected by Horseshoe Metals at the exploration site were bagged into polyweave and bulkie bags and transported to the freight company depot in Meekatharra and then transported by road to the laboratory in Perth. Each laboratory has used appropriate sample preparation facilities and the required analytical equipment. • At the laboratory the diamond core samples were sorted, reconciled, placed in trays on trolleys and dried in a gas

Criteria	JORC Code explanation	Commentary
		oven at 110°C for a minimum of 8 hours or until dry. Samples ranging from 300g - ≤3kg were crushed to nominal ~10mm using a jaw crusher and then pulverised using LM2, LM5 or Mixer Mill pulverisers. Samples >3kg were Boyd crushed to a nominal ~3mm and split in half using Boyd rotary split divider, one half was then pulverised and the other half retained, bagged and stored. After pulverising a 150g craft geochemical (pulp) packet was taken directly from the pulveriser bowl and submitted for analysis. • Sample preparation for RC samples were similar but did not require the crushing circuit and so went straight to the pulverisers. Samples weighing >3kg were riffle split first and then pulverised. • The sample preparation technique is considered to be appropriate.
	• *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*	• Historical data: No formal report or information is available but conversations with original mine personnel suggest that industry standard practices were employed during the mining period 1984-1995. • Horseshoe Metals: Field QAQC procedures included the insertion of field duplicates, blanks and commercial standards. Standards were inserted at intervals of 30. • If a duplicate or blank falls on the 30th sample, the standard sample number was changed to suit. • All laboratory QC data is reported within the structure of the final reports. A blank was included at the start of every job and then after every 90 samples. One duplicate and one CRM was included at random within each set of 24 analysed. One sample preparation split was performed in 25 samples. Wet sieving of at least one sample in every batch was undertaken to confirm % -75um.
	• *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.*	• Historical data: No formal report or information is available but conversations with original mine personnel suggest that industry standard practices were employed during the mining period 1984-1995. • Horseshoe Metals: Field duplicates have been taken on a ratio of 1:50 for RC drilling for Horseshoe Metals holes, the results of which show good correlation with original samples. No second half sampling of diamond core has been undertaken to date.
	• *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Historical data: No formal study is available on this to date for the 1984-1995 data. • Horseshoe Metals: Sample sizes for Horseshoe Metals holes are considered to be appropriate to accurately represent the copper mineralisation at Horseshoe Lights based on the thickness and consistency of the intersections, the sampling methodology and the per cent value assay ranges for the primary elements.

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.*	• Historical procedures: Barrack Mines Ltd and Sabminco NL predominantly used two laboratories to assay diamond drill core and RC drill cuttings. The majority of samples were processed and assayed at the on-site Horseshoe Gold Pty Ltd mine laboratory using the following techniques:
		  ○ assayed for gold using AAS detection limit of 0.01ppm,
		  ○ assayed for copper and silver using traditional AAS wet chemistry technique with a detection limit of 10 ppm Cu and 1 ppm Ag.
		• Classic Laboratories Pty Ltd (renamed Classic Comlabs Ltd and then purchased by Amdel Ltd now Bureau Veritas) was used as a back-up and umpire laboratory for check sampling and overflow using the following techniques:
		  ○ assayed for gold using fire assay technique FAS1 with a detection limit of 0.02ppm,
		  ○ assayed for copper and silver using wet chemistry technique A1/2 with a detection limit of 5ppm Cu and 1ppm Ag.
		• Horseshoe Gold Mine Pty Ltd were aware of the differences in gold assaying method between by the two laboratories and considered the method used by Classic Laboratories Pty Ltd to be more accurate. No reconciliation study of the differences between the two laboratories was completed.
		• Horseshoe Metals Procedures: The copper assay is derived using a mixed acid digest of nitric, hydrofluoric, perchloric and hydrochloric acids on 0.2g of sample and analysed using ICP Optical Emission Spectrophotometry. This method is considered appropriate and effective for this style of mineralisation.

Criteria	JORC Code explanation	Commentary
		• The gold assay was derived using an aqua regia technique where 10g of prepared sample was digested using nitric and hydrochloric acid. The sample was then solvent extracted using Methyl isobutyl ketone and read on a Graphite Furnace Atomic Absorption Spectrometer. This method is considered adequate and effective for this style of mineralisation.
	• *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.*	• Historical data: No geophysical, spectral or XRF data is available for the historical database for Horseshoe Lights. • Horseshoe Metals: No geophysical tools were used by Horseshoe Metals to determine any element concentration used in the resource estimate.
	• *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.*	• Historical data: No formal report or information is available but conversations with original mine personnel suggest that industry standard practices were employed during the mining period 1984-1995. • Horseshoe Metals: Standard laboratory procedures involve the use of certified standards, duplicate samples and insertion of blanks. Assay results have been generally satisfactory, demonstrating acceptable levels of accuracy and precision.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative Company personnel.*	• Historical data: No formal report or procedure is available for the historical data but verification of significant intersections is considered to have been the duty of the senior mine geologist at the time. • Horseshoe Metals: All significant intersections have been verified by the senior geologist and managing director of Horseshoe Metals Ltd.
	• *The use of twinned holes.*	• Historical data: There is no formal report or information detailing the use of twin holes for the historical data but due to drillhole deviation off come close to existing holes which have produced a intersections in the chalcocite ore beneath the pit base with diamond drilling have produced different results in some cases. This may be due to smearing of the original RC hole or core loss in the diamond drilling. • Horseshoe Metals: HDD003 & HDD004 twinned historic RC holes holes in the Motters area and showed good correlation with previous results. Twin holes within the NW stringer zone have not been to date to verify historical data but proximal drilling, as an unintended consequence of drill hole deviation shows good correlation with historical data. Historical sterilisation hole results underneath subsequent waste dumps has recently been tested with follow up drilling as close as possible and only the recent results used for the purpose of the mineral resource estimate.
	• *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.*	• Historical data: There is no information or formal report detailing how this process worked. The assumption is that during the mining period all assays from the Horseshoe Gold Mine lab had been handwritten on the geological logs along with associated sample number. These assays would have been subsequently hand entered into an ASCII format. • Assays received from Classic Laboratories Pty Ltd appear to be in type format and there is no information on how this data was entered into the mine database but the assumption is that it was also hand entered. This ASCII file was eventually used to create a Surpac database for section creation and 3D modelling. The original Surpac database file from March 1995 was used to create the present database. • Horseshoe Metals: Primary data was collected on Toughbook laptop computers using a standard set of Excel or Micromine templates with look up codes. This information was sent to CSA Global Pty Ltd and Delta Resource Management Pty Ltd for compilation and validation into SQL database server.
	• *Discuss any adjustment to assay data.*	• Historical data: Where discrepancies arose between assay values contained in the original 1995 Surpac database and the assay values hand written on the geological logs, the latter appeared to be more complete and consequently used for the present database. Assay values on the original geological logs deemed unreliable were discounted and assigned a copper value code so it would not be used in the resource estimate. Follow up drilling

Criteria	JORC Code explanation	Commentary
		in these areas has clarified the correct values and used in the latest resource estimate. • Horseshoe Metals: No adjustments were made, other than for values below the assay detection limit which have been entered as the negative 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.*	• Historical data: The Mine surveyors used standard industry practices at the time to mark out and pick up collar coordinates in mine grid format. The mine grid coordinates have subsequently been transformed into MGA_GDA94 format. All available historic collar locations still visible at surface have recently been surveyed using RTK DGPS system by MHR Surveyors Pty Ltd. • Downhole surveys were taken from Eastman camera discs employed by the various drilling companies at that time. Selections of these discs are available on site but have not been verified to date. Several available historic collar locations still visible at surface have recently been surveyed down hole either by re-entering the drill hole with a drill rig then downhole surveying using single shot digital camera readings or by DHS (Aust) Pty Ltd using an Electronic Multishot tool with readings in and out of the hole every 5m. Stated accuracies are +/- 0.2^{o} for dip and 0.3^{o} for azimuth. • Horseshoe Metals: All drill hole collar locations have been surveyed by MHR Surveyors using RTK GPS referenced to the nearby Standard Survey Mark PKH4. Expected relative accuracies are 0.02m for easting and northing and 0.05m for RL. • Downhole surveys consisted of single shot digital camera readings during drilling. Open holes were also surveyed by DHS (Aust) Pty Ltd using an Electronic Multishot tool with readings in and out of the hole every 5m. Stated accuracies are +/- 0.2^{o} for dip and 0.3^{o} for azimuth.
	• *Specification of the grid system used.*	• Barrack Mine Ltd created a NW mine grid orientated over the pit area with an east-west azimuth equivalent to 89^{o}. The mine grid RL was offset from real RL by 62.2m. These coordinates have subsequently been transformed to MGA_GDA94 zone 50 using the historic grid transformation. • All recent drill hole data is also recorded in MGA_GDA94 zone 50.
	• *Quality and adequacy of topographic control.*	• Topographic control was created from known survey stations and air photography in strict accordance with Mines Regulation Act 1946 by the authorised mine surveyor.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.*	• RC and RAB exploration drilling outside of the pits environs was generally on a 50 x 50m spacing. RC resource infill drilling was generally 15 x 30m pattern. Diamond resource drilling pattern is irregular but is less than 40 x 40m is most cases. Deep exploration diamond drilling is also irregular. • The current nominal drill hole spacing is 20m x 40m where possible.
	• *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.*	• The historical data spacing and distribution was not considered sufficient for the purpose of a modern resource estimation. Follow up drilling has been completed to infill obvious gaps in order to provide sufficient geological and grade continuity. When the drilling was complete, the mineralised domains display sufficient geological and grade continuity for the mineral resource procedures and classifications applied to support the definition of Measured Indicated and Inferred Mineral Resources under the 2012 JORC code.
	• *Whether sample compositing has been applied.*	• Historical data: Within the resource area 2m composite RC & diamond core samples were routinely taken from 1m splits. • Horseshoe Metals: Sample compositing over a length of 3 or 4m has been applied to samples returning a reading of <1000ppm using a fpXRF.
Orientation of data in relation to	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	• The majority of drilling was orientated mine grid east which is slightly oblique to the mineralised trends but intersection angles are closer to perpendicular in most cases.

Criteria	JORC Code explanation	Commentary
geological structure	• *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.*	• A consistent sampling bias is not considered to be an issue for the purpose of this resource estimation. Diamond drilling confirmed that drilling orientation did not introduce any bias regarding the orientation of key mineralised structures.
Sample security	• *The measures taken to ensure sample security.*	• Historical data: All drill samples were assayed onsite at the Horseshoe Gold Mine Pty Ltd laboratory or at Classic Laboratories Pty Ltd in Meekatharra or Perth. Pulps have been in storage on site within the core yard. • Chain of custody is managed by Horseshoe Metals. All sample numbers are generated in the site office. Once samples intervals are selected, the numbers are assigned to each sample. The sample numbers are not left in the core box (where the sample was taken from), but the core is marked for the taken sample intervals so it would be possible to reconcile the laboratory results against the particular intervals of core. The sample number, drillhole name and sampled interval are recorded in the sampling sheets. All samples are stored onsite and delivered to the freight company depot at Meekatharra by Horseshoe personnel for delivery to Perth and the assay laboratory. Samples are tracked and receipt is acknowledged by laboratory staff.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Sampling techniques are consistent with industry standards. Consistency of data was validated by CSA Global Pty Ltd while loading into the database (Depth from < Depth to; interval is within hole depth, check for overlapping samples or intervals, etc.). Any data which fails the database constraints and cannot be loaded is returned to Horseshoe Metals for validation and correction. Global consistency was also checked later on by plotting sections using the database and reconciling assays.

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 Horseshoe Lights Project comprises one Mining Lease (M52/743) and adjoining Exploration and Prospecting Licences covering an area of approximately 80 km2 (79,733 hectares). Current registered holder of the tenements is Murchison Copper Mines Pty Limited, a wholly owned subsidiary of Horseshoe Metals Limited. • Horseshoe Metals Ltd has 100% interest in the tenements. Horseshoe Gold Mine Pty Limited retains a 3% Net Smelter Return royalty in respect to all production from some of the tenements including M52/743. • The project has a current expenditure commitment of $187,500 per reporting year.
	• *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 tenement is in good standing.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• All activities completed by Horseshoe Gold Mine Pty Ltd which was a wholly owned subsidiary of Barrack Mines Ltd between 1983-1991 and Sabminco NL between 1992-1995. Barrack Mines Ltd drilled 43 diamond holes for 15,353m, 638 Reverse Circulation holes for 55,343m and 19 channel samples for 520m between 1983 and 1989. • Sabminco NL drilled 14 HQ & NQ diamond holes for 2672.25m and 108 Reverse Circulation holes for 9,244m between 1990 and 1993. Initial hole spacing was on a nominal spacing of 50 x 50m with infill as required in the pit area. • Earlier drilling prior to 1983 has not been used.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• Primary VMS mineralisation at Horseshoe Lights occurs in the core of a NNW trending and SE plunging parasitic anticline, that is overturned to produce intermediate SW dips on western limbs and steep SW dips on eastern limbs. The massive and disseminated sulphide envelope of the deposit itself is also SW dipping and plunging to the SSE (150o), and was likely folded. It sits within altered basalt and mafic volcaniclastic units along the contact with overlying felsic volcanic schist. The VMS mineralisation in the mine area is constrained by the tightly folded and sheared stratigraphy, and appears to be affected by offsets along N-S and NE trending

Criteria	JORC Code explanation	Commentary
		brittle cross faults.
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:* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	• In the company's opinion this material has been adequately reported in previous announcements and the detail is not relevant for reporting of Mineral Resources.
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.*	• Not reporting exploration results.
	• *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.*	• Not applicable.
	• *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• Not applicable.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.*	• Drill hole angles of -60° toward the East are adequate to drill mineralised units.
	• *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.*	• Not reporting exploration results.
	• *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').*	• Not reporting exploration results.
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 diagrams in body of text.
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.*	• Not reporting exploration results
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.*	• In the company's opinion this material has been adequately reported in previous announcements and the detail is not relevant for reporting of Mineral Resources.
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).*	• Drilling is planned to upgrade the resources and check the extent of the mineralised zones.
	• *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this*	• Not applicable.

Criteria	JORC Code explanation	Commentary
	information is not commercially sensitive.	

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.*	• Bulk of estimate based on recent drilling. Unreliable historical data omitted from resource estimate. • Horseshoe Metals Ltd primary data was collected on laptop computers in Excel or Micromine tables using drop down codes. • Field data and original assay certificates compiled and validated by database administrators. Drilling data provided in Micromine tables for collar, survey, lithology and assay data.
	• *Data validation procedures used.*	• Validation of the data import include checks for overlapping intervals, missing survey data, missing and incorrectly recorded assay data, missing lithological data and missing collars.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	• The site was visited by Geoff Willetts, Senior Geologist for Horseshoe Metals, number of times. CSA Global have previously supervised drilling programs at Horseshoe Lights between 2012-11 and provided previous resource estimate.
	• *If no site visits have been undertaken indicate why this is the case.*	• Not applicable.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	• Interpretation based on Horseshoe Metals RC and diamond drilling validated geological logging and assays. There is a reasonable level of confidence in the geological interpretation of mineralised lodes that is traceable over numerous drill holes and drill sections. Additional work is required to better define exact geometry and the extents of the interpreted mineralised lodes.
	• *Nature of the data used and of any assumptions made.*	• Drill hole intercept logging and assay results have formed basis for the geological interpretation.
	• *The effect, if any, of alternative interpretations on Mineral Resource estimation.*	• Attempts to further delineate individual shoots and remove internal waste using grade intervals results in lower tonnage but higher grades.
	• *The use of geology in guiding and controlling Mineral Resource estimation.*	• The interpreted late dolerite sill and Bangemall sediment basement were used to limit the interpolation of grade at depth. No geology data was used within the interpreted domains.
	• *The factors affecting continuity both of grade and geology*	• The volcanic package at Horseshoe Lights has been subjected to complex folding and faulting events along with associated alteration within a wide shear zone. As such the interpretation of mineralised shoots is subjective.
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.*	• Horseshoe Lights deposit strike length is ~700m, width variable up to 30m, and down-dip extent of 250m+ north of pit. • Mineralisation is from actual surface and extends to between 210-480m vertical 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.*	• Grade estimation was by Multiple Indicator Kriging (MIK) using Micromine 2011 software. The interpretation was extended perpendicular to the corresponding first and last interpreted cross section to the distance equal to a half distance between the adjacent exploration lines which is approximately 40m; • If a mineralised envelope did not extend to the adjacent drillhole section, it was projected half way to the next section and terminated. The general direction and dip of the envelopes was maintained. • Grade interpolation search ellipses based on Variography. First pass search radii are ⅓ semivariogram ranges, second pass – full semivariogram ranges.

Criteria	JORC Code explanation	Commentary
	• *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 MIK estimate was completed concurrently with OK and two check Inverse Distance Weighting (IDW) estimates. The MIK estimate used the parameters obtained from the modelled variograms. The results of the check estimates correlate well. • Resource estimate represents 40% increase on CSA Global previous estimate.
	• *The assumptions made regarding recovery of by- products.*	• No assumptions have been made.
	• *Estimation of deleterious elements or other non- grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).*	• No deleterious material assessment was made during the estimation.
	• *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.*	• The block model was constructed using a 5mE x 10mN x 5mRL parent block size, with subcelling to 1mE x 2mN x 1mRL for domain volume resolution. The parent cell size was chosen on the basis of the general morphology of mineralised bodies and in order to avoid the generation of too large block models. The subcelling size was chosen to maintain the resolution of the mineralised bodies. The subcells were optimised in the models where possible to form larger cells. • The search radii were determined by means of the evaluation of the semivariogram parameters, which determined the kriging weights to be applied to samples at specified distances. The first search radii for all lodes were selected to be equal to two thirds of the semivariogram long ranges in all directions. Model cells that did not receive a grade estimate from the first interpolation run were used in the next interpolation with greater search radii equal to full long semivariogram ranges in all directions. The model cells that did not receive grades from the first two runs were then estimated using radii incremented by the full long semivariogram ranges. When model cells were estimated using radii not exceeding the full semivariogram ranges, a restriction of at least three samples from at least two drillholes was applied to increase the reliability of the estimates.
	• *Any assumptions behind modelling of selective mining units.*	• No selective mining units were assumed in this estimate.
	• *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.*	• No strong correlations were found between the grade variables. • The 0.18% Cu grade envelopes were defined. Hard boundaries between the grade envelopes used to select sample populations for grade estimation.
	• *Discussion of basis for using or not using grade cutting or capping.*	• No grade cutting was applied, because MIK was used for the grade interpolation. The last bin defined for MIK is likely to contain occasional very high values, the estimate for this bin only is calculated using the median, which gives a more conservative value for positively skewed data than the mean.
	• *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• Validation of the block model consisted of comparison of the block model volume to the wireframe volume. Grade estimates were validated by statistical comparison with the drill data, visual comparison of grade trends in the model with the drill data trends. No reconciliation data is available at this early stage of the project.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Tonnages are estimated on a dry basis
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• Mineralised domain interpreted on grade ≥0.18% based on statistical mean of drill data. Statistical analysis showed natural breaks in the Cu grade population distribution at approximately 0.18% which formed the basis for the decision regarding determination of mineralisation envelope cut-off grade. Mineral Resources estimated at a range of cut-offs.

Criteria	JORC Code explanation	Commentary
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.*	• Possible mining methods are existing open pit cut back and selective underground operation from bottom of pit.
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 or assumptions used to restrict or modify the resource estimation.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• No detailed assumption regarding possible waste and process residue disposal options have been made at this stage. • No environmental factors or assumptions used to restrict or modify the resource estimation.
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.*	• Applied bulk density values based upon recent test work by Nagrom. • Process involved hydrostatic weighing of 18 HQ core samples from the representative profiles.
	• *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.*	• Sample were oven dried at 105^{o} C for 24 hours and then weighed to record a dry mass. • Individual samples wrapped in cling film and placed into a weighing basket and submerged in water to record a wet mass. Bulk density is determined by dividing the dry mass value by the dry mass minus the wet mass value.
	• *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• Calculated bulk density values applied to interpreted weathering profiles i.e. oxide, transitional and fresh. The bulk density values have been applied to all corresponding material in the model. • Weathering profiles based on logging records and core and chip photography.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.*	• The Mineral Resource classification is based on the evidence from the available drill sampling. This evidence is sufficient to imply the geological and grade continuity. The areas with the denser drilling and robust continuation of the mineralised zones were classified as Measured or Indicated Mineral Resource.
	• *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).*	• The Measured, Indicated and Inferred classification has taken into account all available geological and sampling information, exploration grid density and geological continuity. The classification level is considered appropriate for the current stage of this project.

Criteria	JORC Code explanation	Commentary
	• *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• The Mineral Resource estimate appropriately reflects the view of the Competent Person.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• No audits of the Mineral Resource estimate have been undertaken at this time.
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 relative accuracy of the Mineral Resource estimate is reflected in the reporting of the Mineral Resource to an Inferred and Indicated classification as per the guidelines of the 2012 JORC Code. Mineral resource estimate technique deemed appropriate. Estimation result concurs with internal desktop studies.
	• *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 statement refers to global estimation of tonnes and grade.
	• *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• No production data is available.