

## HIGH-GRADE CARBONATITE RARE EARTH (REE) DISCOVERY AT ARUNTA PROJECT-NT

### HIGHLIGHTS:

- **High-grade carbonatite rare earth (REE) grades of up to 7,000\*ppm (0.70%) TREO, 35% MREO/TREO, 28% NdPr/TREO and 36% Y<sub>2</sub>O<sub>3</sub>/TREO with multiple zones of mineralisation.**
- **Exceptionally high-grade carbonatite of 38% MREO/TREO, 58% HREO/TREO 28% NdPr/TREO and 36% Y<sub>2</sub>O<sub>3</sub>/TREO.**
- **Carbonatite dyke outcrops extend strike east-west by 9km and remain open.**
- **Potential for sufficient rare earth (REE) minerals resource tonnes.**

### Best drill highlights include:

#### **Plenty River:**

- **BRR23016: 2m\* @ 4,000 ppm (0.4%) TREO and 35% MREO/TREO, 27% NdPr/TREO from 21m Incl: 7,000 ppm (0.7%) TREO, 35% MREO/TREO, 28% NdPr/TREO from 21m.**
- **BRR23009: 3m\* @ 1,010 ppm TREO and 28% MREO/TREO, 41% HREO/TREO and 17% Y<sub>2</sub>O<sub>3</sub>/TREO from 10m Incl: 2m\* @ 1,300 ppm TREO and 29% MREO/TREO, 19% NdPr/TREO and 23% Y<sub>2</sub>O<sub>3</sub>/TREO from 10m.**

#### **Plenty River East:**

- **BRR23003: 33m\* @ 13% MgO from 39m and 3m\* @ 535 ppm V<sub>2</sub>O<sub>5</sub> from 45m.**
- **BRR23002: 26m\* @ 17% MgO from 30m.**
- **BRR23001: 4m\* @ 2.6% TiO<sub>2</sub> from 63m.**

#### **Bruce:**

- **BRR23013: 1m\* @ 7,785 ppm CuO (0.8%\* CuO) from 103m, 3m\* @ 1,000 ppm PbO<sub>2</sub> from 63m, 2m\* @ 1,170 ppm PbO<sub>2</sub> from 84m and 3m\* @ 1,245 ppm ZnO from 63m, 2m\* @ 1,710 ppm ZnO from 83m.**
- **BRR230014: 6m\* @ 1.7% TiO<sub>2</sub> from 102m.**

**Commenting on the positive drilling results from the Bruce Prospect, Managing Director, Sean Sivasamy said:** "We are delighted with the initial outcomes from our first drilling campaign at Bruce. These results demonstrate the clear potential for Bruce to host a considerable carbonatite and REE system with the outcropping strike of now extending over 9km.

The Bruce Prospect is shaping as an excellent opportunity for MGA and demonstrates the underlying exploration potential of our Arunta Project area in the Northern Territory – a region home to several world-class deposits.

Drilling has also recently been completed at our Edwards Creek Prospect, which is nearby to Bruce, so we look forward to reporting further news as these results become available."

\* Drilling widths reported are downhole and no estimate of true width is given.

\* Some numbers are rounded to the closest numbers.



**MetalsGrove**  
MINING LIMITED

#### Date

14 August 2023

#### ASX Code

MGA

#### Shares on Issue

52,710,000

### Company Directors

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Managing Director and CEO

Mr Richard Beazley  
Non-Executive Chairperson

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Critical metals exploration and development company **MetalsGrove Mining Limited** (ASX: **MGA**), ("**MetalsGrove**" "**MGA**" or the "Company"), is pleased to advise that Reverse Circulation ("RC") at the Bruce Prospect has confirmed high-grade Rare Earth Element (REE) carbonatite mineralisation.

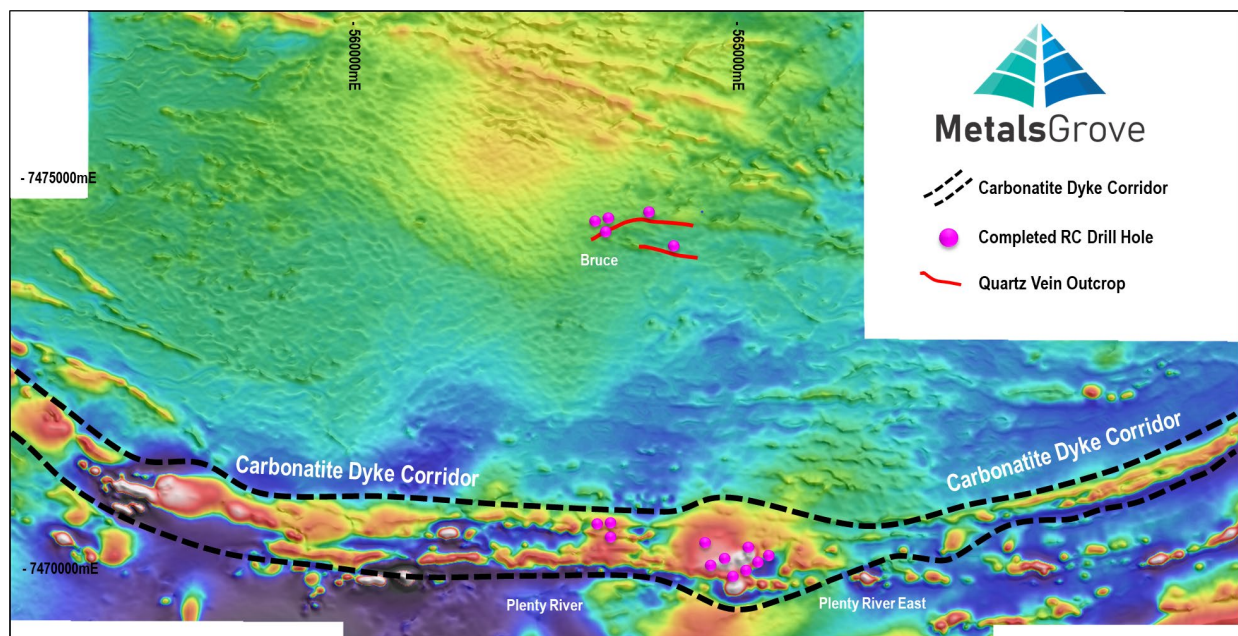
The Bruce Prospect is located within the Company's Arunta Project, north of Alice Springs in the Northern Territory.

MGA recently completed (see ASX announcement dated 3 July 2023) a total of 16 RC holes for 2,343m designed to test several high priority targets including identified **multiple high priority carbonatite<sup>1</sup> and REE bearing drill targets** reported from soil sampling (see ASX release dated 7 June 2023).

Assays from this programme have returned high-grade carbonatite REE grades of up to **7,000 ppm (0.70%) TREO 35% MREO/REO, 28% NdPr/TREO and 36% Y<sub>2</sub>O<sub>3</sub>/TREO with multiple zones of mineralisation.**

Further, drilling has also highlighted exceptionally high-grade carbonatite of **38% MREO/TREO, 58% HREO/TREO 28% NdPr/TREO and 36% Y<sub>2</sub>O<sub>3</sub>/TREO.**

Carbonatite outcrops extend strike east-west by 9km and remain open.



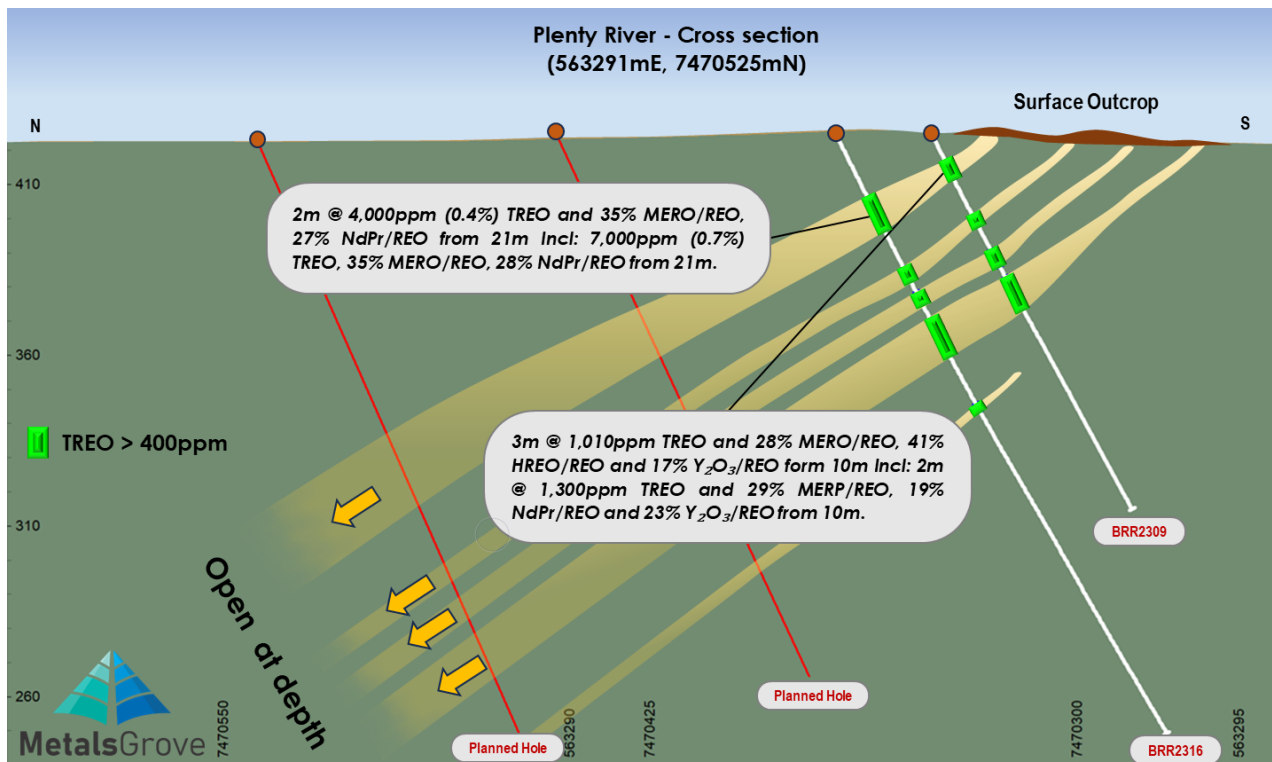
**Figure 1: Maiden Drilling at Bruce Drill Hole Location Plan.**

All the intersections are shallow at depth with the geology of the holes in altered biotite schist and gneiss. The most significant intersections occur near surface and in the weathered zone. Weathering processes typically concentrate rare earth element (REE). The primary rock is leached and the rare earth oxides (REO) are concentrated in the weathered zone.

The grades returned in the Bruce drilling compare very favourably and indicate potential for the project if sufficient tonnes can be found. The HREO/TREO, MREO/TREO and NdPr/TREO ratios are all reasonable and comparable to other REE projects (Table:1).

Company	Project Name	Cut-off TREO %	TREO %	LREO ppm	HREO ppm	MREO ppm	NdPr ppm	HREO /TREO	MREO /TREO	NdPr /TREO	Y <sub>2</sub> O <sub>3</sub> /TREO
Pensana	Longonjo	0.1% NdPr (~0.5% REO)	1.60	14,720	1,250	4,200	2,710	8%	26%	17%	2.6%
Peak Resources	Ngualla	3.0	4.75	46,140	1,380	11,220	10,110	3%	24%	21%	0.2%
Lynas	Mount Weld	4.0	8.60				19,500			23%	
Arafura	Nolan's Bore	1.0	2.60	24,544	2,506	8,861	6,864	10%	34%	26%	1.4%
Hastings	Yangibana	0.2% NdPr	1.17	10,263	920	5,167	3,900	8%	44%	33%	1.4%
Northern Minerals	Browns Range	0.15	0.76		6,688			88%			57%
Ionic Rare Earths	Makuutu	200ppm*	640	480	171	179	140	26%	30%	22%	14%
ABX	Deep Leads	250ppm*	0.08	476	326	260	161	41%	32%	20%	23
Dreadnought	Yin	0.2	1.03							28%	
<b>MetalsGrove</b>	<b>BRR23016</b>	<b>0.0</b>	<b>0.70</b>	<b>6,095</b>	<b>934</b>	<b>2,394</b>	<b>1,875</b>	<b>14%</b>	<b>35%</b>	<b>28%</b>	<b>5%</b>

**Table 1: Rare Earth Grades and Ratios for Selected Rare Earth Projects in the MetalsGrove RC Drilling for Comparison.**



**Figure 2: Plenty River Carbonatite Rare Earth Mineralisation Section View.**





**Figure 3: BRR23016 Zone of Carbonatite Rare Earth Mineralisation with Biotite Schist and Gneiss Alteration.**

Hole ID	Sample ID	FROM (m)	TO (m)	TREO ppm	LREO ppm	HREO ppm	MREO ppm	NdPr ppm	HREO/TREO	MREO/TREO	NdPr/TREO	Y <sub>2</sub> O <sub>3</sub> /TREO
BRR23002	MG04671	85	86	535	507	44	151	120	8%	28%	22%	2%
BRR23003	MG04799	102	103	1,327	1,236	123	350	285	9%	26%	21%	3%
BRR23007	MG05386	148	149	512	430	104	104	46	20%	20%	9%	8%
BRR23009	MG05607	10	11	1,295	998	331	351	258	26%	27%	20%	14%
BRR23009	MG05608	11	12	1,225	750	515	370	221	42%	30%	18%	23%
BRR23009	MG05609	12	13	517	248	284	143	70	55%	28%	14%	31%
BRR23009	MG05637	39	40	584	498	100	155	119	17%	27%	20%	9%
BRR23011	MG05927	43	44	590	522	83	159	124	14%	27%	21%	7%
BRR23015	MG06477	1	2	507	367	156	148	99	31%	29%	19%	17%
BRR23015	MG06482	6	7	704	311	408	173	86	58%	25%	12%	36%
BRR23016	MG06654	21	22	6,770	6,095	934	2,394	1,875	14%	35%	28%	5%

BRR23016	MG06655	22	23	1,019	847	209	348	260	20%	34%	26%	9%
BRR23016	MG06662	29	30	540	285	269	144	79	50%	27%	15%	28%
BRR23016	MG06678	44	45	527	454	86	151	115	16%	29%	22%	8%
BRR23016	MG06701	66	67	514	443	83	136	106	16%	26%	21%	8%
BRR23016	MG06702	67	68	602	518	98	160	125	16%	27%	21%	8%
BRR23016	MG06703	68	69	584	502	96	155	120	16%	27%	21%	8%
BRR23016	MG06704	69	70	520	454	79	140	109	15%	27%	21%	7%

**Table 2. Best intersections from the 2023 Bruce RC drill programme, intersections are reported as down-hole widths using a cut-off of 500ppm TREO.**

REE Elemental Conversion:

Conversion of elemental analysis (REE parts per million) to oxide (REO parts per million) was using the below element to oxide conversion factors.

Element Conversion Factor - Oxide Form

Ce x 1.2284 = CeO<sub>2</sub>, Dy x 1.1477 = Dy<sub>2</sub>O<sub>3</sub>, Er x 1.1435 = Er<sub>2</sub>O<sub>3</sub>, Eu x 1.1579 = Eu<sub>2</sub>O<sub>3</sub>, Gd x 1.1526 = Gd<sub>2</sub>O<sub>3</sub>, Ho x 1.1455 = Ho<sub>2</sub>O<sub>3</sub>, La x 1.1728 = La<sub>2</sub>O<sub>3</sub>, Lu x 1.1371 = Lu<sub>2</sub>O<sub>3</sub>, Nd x 1.1664 = Nd<sub>2</sub>O<sub>3</sub>, Pr x 1.2083 = Pr<sub>6</sub>O<sub>11</sub>, Sm x 1.1596 = Sm<sub>2</sub>O<sub>3</sub>, Tb x 1.1762 = Tb<sub>4</sub>O<sub>7</sub>, Tm x 1.1421 = Tm<sub>2</sub>O<sub>3</sub>, Y x 1.2699 = Y<sub>2</sub>O<sub>3</sub>, Yb x 1.1387 = Yb<sub>2</sub>O<sub>3</sub>

Rare earth oxide is the industry-accepted form for reporting rare earth analytical results. The following calculations are used for compiling REO into their reporting and evaluation groups:

- TREO: (Total Rare Earth Oxide) = La<sub>2</sub>O<sub>3</sub> + CeO<sub>2</sub> + Pr<sub>6</sub>O<sub>11</sub> + Nd<sub>2</sub>O<sub>3</sub> + Sm<sub>2</sub>O<sub>3</sub> + Eu<sub>2</sub>O<sub>3</sub> + Gd<sub>2</sub>O<sub>3</sub> + Tb<sub>4</sub>O<sub>7</sub> + Dy<sub>2</sub>O<sub>3</sub> + Ho<sub>2</sub>O<sub>3</sub> + Er<sub>2</sub>O<sub>3</sub> + Tm<sub>2</sub>O<sub>3</sub> + Yb<sub>2</sub>O<sub>3</sub> + Y<sub>2</sub>O<sub>3</sub> + Lu<sub>2</sub>O<sub>3</sub>.
- LREO: (Light Rare Earth Oxide) = La<sub>2</sub>O<sub>3</sub> + CeO<sub>2</sub> + Pr<sub>6</sub>O<sub>11</sub> + Nd<sub>2</sub>O<sub>3</sub> + Sm<sub>2</sub>O<sub>3</sub>.
- HREO: (Heavy Rare Earth Oxide) = Eu<sub>2</sub>O<sub>3</sub> + Gd<sub>2</sub>O<sub>3</sub> + Tb<sub>4</sub>O<sub>7</sub> + Dy<sub>2</sub>O<sub>3</sub> + Ho<sub>2</sub>O<sub>3</sub> + Er<sub>2</sub>O<sub>3</sub> + Tm<sub>2</sub>O<sub>3</sub> + Yb<sub>2</sub>O<sub>3</sub> + Y<sub>2</sub>O<sub>3</sub> + Lu<sub>2</sub>O<sub>3</sub>.
- MREO: (Magnetic Rare Earth Oxide) = Pr<sub>6</sub>O<sub>11</sub> + Nd<sub>2</sub>O<sub>3</sub> + Sm<sub>2</sub>O<sub>3</sub> + Gd<sub>2</sub>O<sub>3</sub> + Tb<sub>4</sub>O<sub>7</sub> + Dy<sub>2</sub>O<sub>3</sub>.
- NdPr: Nd<sub>2</sub>O<sub>3</sub>+ Pr<sub>6</sub>O<sub>11</sub>.

Hole ID	Sample ID	FROM (m)	TO (m)	MgO ppm	MgO %	Hole ID	Sample ID	FROM (M)	TO (M)	TiO <sub>2</sub> ppm	TiO <sub>2</sub> %
BRR23002	MG04597	14	15	186,355	19.00	BRR23001	MG04466	63	64	17,307	2.00
BRR23002	MG04598	15	16	175,189	18.00	BRR23001	MG04467	64	65	28,161	3.00
BRR23002	MG04603	19	20	152,566	15.00	BRR23001	MG04468	65	66	27,085	3.00
BRR23002	MG04617	33	34	195,417	20.00	BRR23001	MG04469	66	67	31,957	3.00
BRR23002	MG04618	34	35	205,325	21.00	BRR23001	MG04493	89	90	16,511	2.00
BRR23002	MG04619	35	36	193,799	19.00	BRR23003	MG04741	46	47	17,153	2.00
BRR23002	MG04620	36	37	211,109	21.00	BRR23003	MG04742	47	48	15,483	2.00
BRR23002	MG04621	37	38	214,183	21.00	BRR23003	MG04747	52	53	18,771	2.00
BRR23002	MG04622	38	39	193,285	19.00	BRR23003	MG04765	69	70	19,935	2.00
BRR23002	MG04623	39	40	150,193	15.00	BRR23005	MG05042	93	94	18,808	2.00
BRR23002	MG04627	42	43	152,588	15.00	BRR23007	MG05345	109	110	18,708	2.00
BRR23002	MG04636	51	52	169,987	17.00	BRR23007	MG05346	110	111	22,074	2.00
BRR23002	MG04637	52	53	186,672	19.00	BRR23007	MG05347	111	112	15,065	2.00
BRR23002	MG04638	53	54	188,544	19.00	BRR23009	MG05713	112	113	16,568	2.00
BRR23002	MG04639	54	55	202,620	20.00	BRR23009	MG05714	113	114	22,915	2.00

BRR23002	MG04672	86	87	156,854	16.00	BRR23009	MG05715	114	115	24,433	2.00
BRR23002	MG04673	87	88	162,203	16.00	BRR23010	MG05816	87	88	16,344	2.00
BRR23002	MG04674	88	89	186,204	19.00	BRR23010	MG05831	101	102	17,415	2.00
BRR23002	MG04676	89	90	165,089	17.00	BRR23010	MG05832	102	103	22,101	2.00
BRR23002	MG04678	91	92	172,954	17.00	BRR23010	MG05833	103	104	22,566	2.00
BRR23002	MG04679	92	93	180,719	18.00	BRR23010	MG05834	104	105	17,817	2.00
BRR23002	MG04680	93	94	168,228	17.00	BRR23010	MG05839	109	110	16,149	2.00
BRR23002	MG04681	94	95	166,919	17.00	BRR23011	MG05884	2	3	16,653	2.00
BRR23002	MG04682	95	96	187,687	19.00	BRR23011	MG05891	9	10	15,348	2.00
BRR23002	MG04683	96	97	164,241	16.00	BRR23011	MG05892	10	11	16,329	2.00
BRR23002	MG04684	97	98	166,538	17.00	BRR23011	MG05911	28	29	15,081	2.00
BRR23003	MG04724	30	31	177,388	18.00	BRR23011	MG05915	32	33	16,498	2.00
BRR23003	MG04735	40	41	163,523	16.00	BRR23011	MG06022	135	136	15,141	2.00
BRR23003	MG04736	41	42	172,922	17.00	BRR23011	MG06030	142	143	19,969	2.00
BRR23003	MG04737	42	43	180,149	18.00	BRR23012	MG06040	4	5	16,357	2.00
BRR23003	MG04738	43	44	150,193	15.00	BRR23012	MG06041	5	6	15,181	2.00
BRR23003	MG04739	44	45	175,209	18.00	BRR23012	MG06042	6	7	16,921	2.00
BRR23003	MG04740	45	46	164,804	16.00	BRR23012	MG06043	7	8	17,772	2.00
BRR23003	MG04741	46	47	156,410	16.00	BRR23012	MG06096	58	59	15,800	2.00
BRR23003	MG04743	48	49	158,773	16.00	BRR23012	MG06097	59	60	18,052	2.00
BRR23003	MG04745	50	51	158,303	16.00	BRR23012	MG06110	71	72	15,166	2.00
BRR23003	MG04746	51	52	183,964	18.00	BRR23012	MG06153	112	113	16,242	2.00
BRR23003	MG04747	52	53	171,418	17.00	BRR23012	MG06156	115	116	15,700	2.00
BRR23003	MG04748	53	54	186,191	19.00	BRR23012	MG06166	125	126	15,255	2.00
BRR23003	MG04749	54	55	204,841	20.00	BRR23012	MG06167	126	127	16,856	2.00
BRR23003	MG04752	56	57	162,009	16.00	BRR23013	MG06197	25	26	16,804	2.00
BRR23003	MG04753	57	58	150,634	15.00	BRR23013	MG06198	26	27	17,714	2.00
BRR23003	MG04755	59	60	202,965	20.00	BRR23013	MG06200	28	29	15,465	2.00
BRR23003	MG04757	61	62	178,192	18.00	BRR23013	MG06274	99	100	16,653	2.00
BRR23003	MG04761	65	66	164,406	16.00	BRR23013	MG06288	112	113	18,247	2.00
BRR23003	MG04762	66	67	192,039	19.00	BRR23013	MG06289	113	114	17,130	2.00
BRR23003	MG04763	67	68	204,421	20.00	BRR23013	MG06291	115	116	15,438	2.00
BRR23003	MG04764	68	69	179,132	18.00	BRR23013	MG06292	116	117	15,695	2.00
BRR23003	MG04765	69	70	186,538	19.00	BRR23014	MG06314	17	18	17,061	2.00
BRR23003	MG04766	70	71	191,162	19.00	BRR23014	MG06322	25	26	15,085	2.00
BRR23003	MG04767	71	72	153,112	15.00	BRR23014	MG06353	54	55	16,029	2.00
BRR23004	MG04835	12	13	185,594	19.00	BRR23014	MG06358	59	60	15,719	2.00
BRR23004	MG04836	13	14	195,835	20.00	BRR23014	MG06361	62	63	16,281	2.00
BRR23004	MG04856	32	33	183,372	18.00	BRR23014	MG06368	69	70	18,041	2.00
BRR23004	MG04857	33	34	192,898	19.00	BRR23014	MG06382	82	83	19,243	2.00
BRR23004	MG04879	54	55	167,999	17.00	BRR23014	MG06385	85	86	17,031	2.00
BRR23004	MG04903	77	78	150,060	15.00	BRR23014	MG06386	86	87	17,196	2.00
BRR23004	MG04904	78	79	162,315	16.00	BRR23014	MG06388	88	89	16,561	2.00
BRR23005	MG05045	96	97	154,128	15.00	BRR23014	MG06396	96	97	17,413	2.00
BRR23005	MG05046	97	98	171,143	17.00	BRR23014	MG06397	97	98	15,211	2.00
BRR23005	MG05047	98	99	183,138	18.00	BRR23014	MG06398	98	99	15,797	2.00
BRR23005	MG05048	99	100	183,223	18.00	BRR23014	MG06403	102	103	15,043	2.00
BRR23005	MG05049	100	101	184,710	18.00	BRR23014	MG06404	103	104	15,251	2.00

BRR23005	MG05050	101	102	181,558	18.00	BRR23014	MG06405	104	105	16,432	2.00
BRR23015	MG06629	147	148	153,621	15.00	BRR23014	MG06407	106	107	15,949	2.00
						BRR23014	MG06408	107	108	22,523	2.00
						BRR23014	MG06473	170	171	19,622	2.00
						BRR23015	MG06502	25	26	17,353	2.00

**Table 3. Best intersections from the 2023 Bruce RC drill programme, intersections are reported as down-hole widths using a cut-off of 15% MgO and 1.5% TiO<sub>2</sub>.**

Hole ID	Sample ID	FROM (m)	TO (m)	CuO ppm	CuO %	PbO <sub>2</sub> ppm	PbO <sub>2</sub> %	ZnO ppm	ZnO %
BRR23007	MG05232	0	1	7,864	0.80				
BRR23011	MG05889	7	8	2,738	0.30				
BRR23011	MG05890	8	9	749	0.10				
BRR23011	MG05976	90	91					502	0.10
BRR23012	MG06039	3	4	923	0.10				
BRR23012	MG06040	4	5	1,321	0.10				
BRR23012	MG06140	100	101	678	0.10				
BRR23013	MG06216	43	44	673	0.10				
BRR23013	MG06237	63	64	504	0.10	1,522	0.20	1,291	0.10
BRR23013	MG06238	64	65	2,682	0.30	760	0.10	1,450	0.10
BRR23013	MG06239	65	66	764	0.10	728	0.10	988	0.10
BRR23013	MG06258	83	84					622	0.10
BRR23013	MG06259	84	85			1,863	0.20	2,796	0.30
BRR23013	MG06260	85	86	692	0.10	475	0.00		
BRR23013	MG06279	103	104	7,783	0.80				
BRR23013	MG06279	103	104					508	0.10
BRR23014	MG06398	98	99					554	0.10
BRR23014	MG06399	99	100					546	0.10
BRR23014	MG06403	102	103					418	0.04
BRR23014	MG06404	103	104					421	0.04
BRR23014	MG06407	106	107					448	0.04
BRR23014	MG06408	107	108	530	0.10			503	0.10
BRR23014	MG06461	158	159			424	0.04		

**Table 4. Best intersections from the 2023 Bruce RC drill programme, intersections are reported as down-hole widths using a cut-off of 500ppm CuO, 400ppm ZnO, 400ppm PbO<sub>2</sub>.**

Hole ID	Sample ID	FROM (m)	TO (m)	V <sub>2</sub> O <sub>5</sub> ppm
BRR23003	MG04694	1	2	502
BRR23003	MG04740	45	46	516
BRR23003	MG04741	46	47	571
BRR23003	MG04742	47	48	521
BRR23009	MG05714	113	114	502
BRR23009	MG05715	114	115	589
BRR23010	MG05833	103	104	603
BRR23011	MG06030	142	143	518
BRR23012	MG06039	3	4	514
BRR23012	MG06042	6	7	557



BRR23012	MG06043	7	8	584
BRR23012	MG06097	59	60	577
BRR23013	MG06176	4	5	512
BRR23013	MG06197	25	26	566
BRR23013	MG06198	26	27	591
BRR23013	MG06214	41	42	539
BRR23013	MG06274	99	100	573
BRR23013	MG06288	112	113	525
BRR23014	MG06368	69	70	555
BRR23014	MG06382	82	83	528
BRR23014	MG06396	96	97	528
BRR23014	MG06398	98	99	539
BRR23014	MG06403	102	103	516
BRR23014	MG06404	103	104	546
BRR23014	MG06407	106	107	511
BRR23014	MG06408	107	108	541
BRR23014	MG06473	170	171	578
BRR23015	MG06485	9	10	582

**Table 5. Best intersections from the 2023 Bruce RC drill programme, intersections are reported as down-hole widths using a cut-off of 500 ppmV<sub>2</sub>O<sub>5</sub>.**

## Bruce Prospect Background

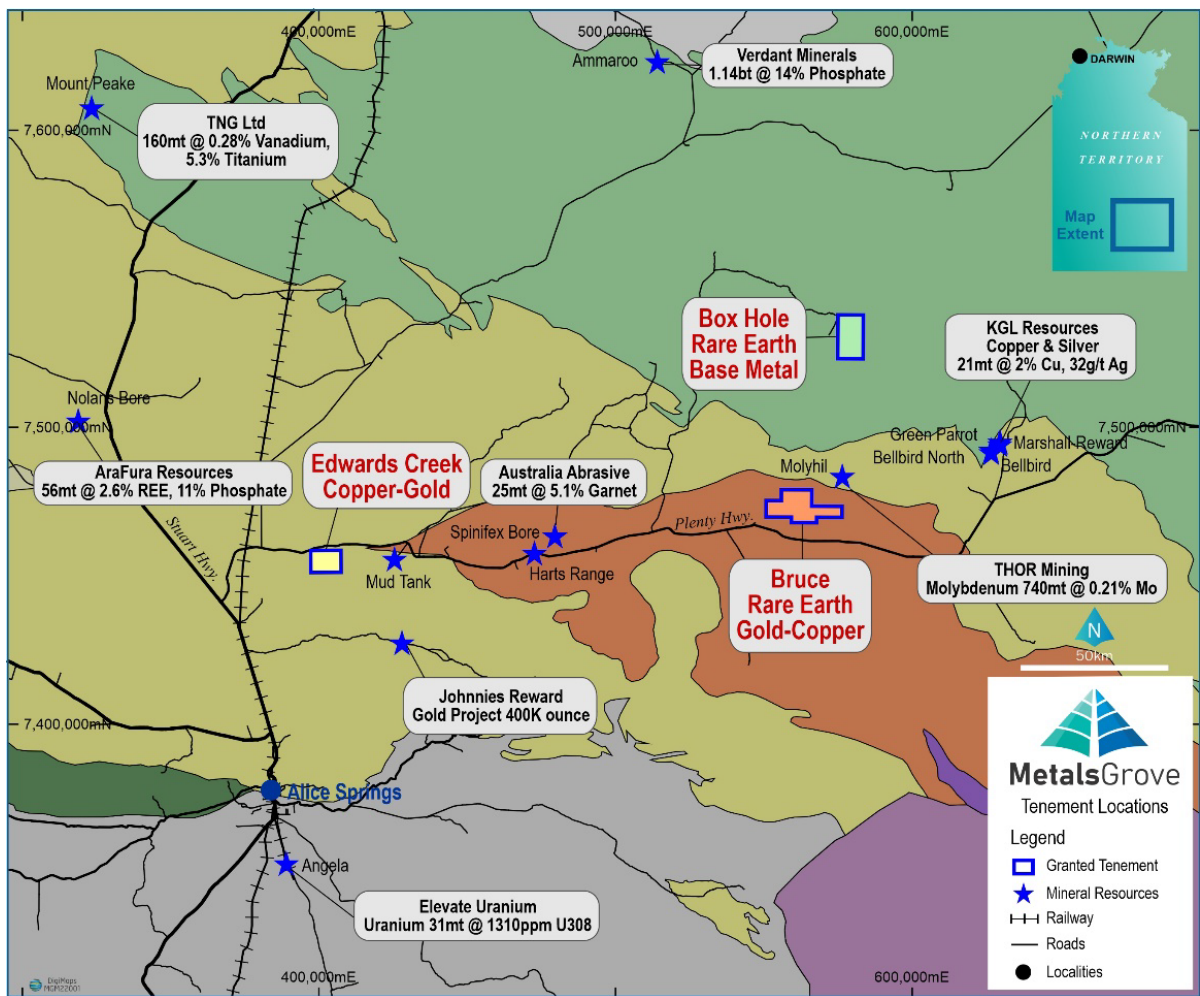
The Bruce rare earth prospect is located within the Central Desert Region in the Northern Territory and covers an area of approximately 17,722 ha. MGA recently reported (see ASX announcement dated 7th June 2023) that it had identified outcropping carbonatite and high grade REE mineralisation that now extends more than 9km in length with multiple parallel mineralised areas and with a high percentage of valuable magnetic and heavy rare earth elements up to 1,800 ppm TREO, 38% HREO/TREO, 31% MREO/TREO, 23% NdPr/TREO, 23% Y<sub>2</sub>O<sub>3</sub>/TREO.

MGA reported (see ASX announcement dated 20th July 2022) that it had identified a broad conductor along strike from the Plenty River mine which is adjacent to magnetic features interpreted to be components of the pegmatite intrusion.

Significant rare earth occurrences have been found in the Harts Range and Plenty River mica fields within the Irindina Province. Joklik (1955) and Daly and Dyson (1956) provided details of the mica mines and documented numerous minerals associated with the host pegmatites. MGA is currently exploring pegmatite, breccia, vein and alteration-hosted rare earth mineralisation at Bruce.

The Northern Territory Geological Survey (NTGS) completed a geological study at Arunta region and identified numerous pegmatites hosting rare earth occurrences including Plenty River mica mine area. NTGS survey mapping and location of mineral occurrences (Geological Survey Record 2003-004, Rare earth element mineralisation in the eastern Arunta Region - KJ Hussey).





**Figure 4 – Arunta Project Location Map.**

## About MetalsGrove

MetalsGrove Mining Limited (ASX: MGA) is an Australian-based exploration and development company, focused on the exploration and development of its portfolio of high-quality lithium, rare earth, copper-gold, manganese and base metal projects in Western Australia and the Northern Territory.

MGA is committed to green metal exploration and development to meet the growing demand from the battery storage and renewable energy markets in the transition to a de-carbonised world.

## Competent Person Statement – Exploration Strategy

The information in this announcement that relates to exploration strategy has been developed by Sean Sivasamy. All assay results have been compiled by Mr Sivasamy who is a member of Australasian Institute of Mining and Metallurgy. Mr Sivasamy is Managing Director and CEO of MetalsGrove Mining Limited.

Mr Sivasamy has sufficient experience which is relevant to the style of mineralisation and exploration processes as reported herein to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'.

Mr Sivasamy consents to the inclusion in this announcement of the information contained herein, in the form and context in which it appears.

## Forward looking statements

This announcement may contain certain “forward looking statements” which may not have been based solely on historical facts, but rather may be based on the Company’s current expectations about future events and results. Where the Company expresses or implies an expectation or belief as to future events or results, such expectation or belief is expressed in good faith and believed to have a reasonable basis.

However, forward looking statements are subject to risks, uncertainties, assumptions, and other factors which could cause actual results to differ materially from future results expressed, projected or implied by such forward looking statements. Such risks include, but are not limited to exploration risk, mineral resource risk, metal price volatility, currency fluctuations, increased production costs and variances in ore grade or recovery rates from those assumed in mining plans, as well as political and operational risks in the countries and states in which we sell our product to, and government regulation and judicial outcomes.

For more detailed discussion of such risks and other factors, see the Company’s Prospectus, as well as the Company’s other filings. Readers should not place undue reliance on forward looking information. The Company does not undertake any obligation to release publicly any revisions to any “forward looking statement” to reflect events or circumstances after the date of this announcement, or to reflect the occurrence of unanticipated events, except as may be required under applicable securities laws.

**Authorised for release by the MetalsGrove Mining Limited Board of Directors,**

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# JORC Code, 2012 Edition – Table 1

## Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code Explanation	Commentary
<b>Sampling Techniques</b>	<ul style="list-style-type: none"> <li>Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> </ul>	<ul style="list-style-type: none"> <li>Drilling was conducted on the Bruce Project, NT. Drilling was supervised and samples collected by geologists from Apex Geoscience Australia Pty Ltd which is an independent geological consultancy.</li> <li>Drill holes on the project included sixteen (16) reverse circulation (RC) holes. Samples were collected with one – metre intervals (approximately 2-3 kg) from a rig-mounted cone splitter were collected.</li> <li>Samples were submitted Intertek Genalysis in Alice Springs and analysed by Intertek Genalysis in Perth. Analysis of the samples were completed using a 50-gram fire assay for gold and a four acid multi element analysis.</li> </ul>
<b>Drilling Techniques</b>	<ul style="list-style-type: none"> <li>Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of The samples were rock chip samples, no drill samples were collected.</li> </ul>	<ul style="list-style-type: none"> <li>The drilling was conducted by Strike Drilling Pty Ltd, with a schram RC drill rig. This drill uses a modern face sampling hammer with inner-tube and sample hose delivery to cyclone-cone splitter sample assembly. RC drilling used a 5 ½ inch face sampling hammer with a 4-inch rod string.</li> </ul>
<b>Drill Sample Recovery</b>	<ul style="list-style-type: none"> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximize sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of</li> </ul>	<ul style="list-style-type: none"> <li>Sample recovery and sample condition was recorded for all drilling. Sample recovery was good for all drill holes.</li> </ul>

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*fine/coarse material.*

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**Logging**

- *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.*
- *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.*
- *The total length and percentage of the relevant intersections logged.*
- RC drill holes were logged for various geological attributes, including colour, lithology, oxidation, alteration, mineralization and veining. All holes were logged in full by geologists from Apex Geoscience Australia Pty Ltd.

**Sub-sampling Techniques and Sample Preparation**

- *If core, whether cut or sawn and whether quarter, half or all core taken.*
- *If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.*
- *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*
- *Quality control procedures adopted for all sub-sampling stages to maximize representivity of samples.*
- *Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.*
- *Whether sample sizes are appropriate to the grain size of the material being sampled.*
- The drill samples were either collected as 1m interval samples. The 1m sample that was collected through the cone splitter mounted to a vertical cyclone was submitted for analysis. The samples were collected as approximately 2 to 3 kg sub-sample splits.
- The sample sizes and analysis size are considered appropriate to correctly represent the mineralization based on: the style of mineralization, the sampling methodology and assay value ranges for the commodities of interest. Samples were submitted to Intertek where they were run through a jaw crusher and then pulverized down to 80% passing 75 microns.
- Quality Control on the RC drill rig included insertion of duplicate samples (2%) to test lab repeatability, insertion of standards (2%) to verify lab assay accuracy and cleaning and inspection of sample assembly. A standard or duplicate was inserted every 25th sample.
- Samples were submitted Intertek Genalysis in Alice Springs and analysed by Intertek Genalysis in Perth.



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**Quality of Assay Data and Laboratory Tests**

- *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*
  - *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.*
  - *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.*
- Samples were prepared by Intertek Genalysis in Alice Springs and analysed by Intertek Genalysis in Perth. The sample analysis uses a Four Acid 48 element package 4A/MS48 and rare earth element 4A/MS48R finish.
  - Elements assayed included: Ag, Al, As, Au, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Ga, Gd, Ge, Hf, Ho, In, K, La, Li, Lu, Mg, Mn, Mo, Na, Nb, Nd, Ni, P, Pb, Pr, Rb, Re, S, Sb, Sc, Se, Sm, Sn, Sr, Ta, Tb, Te, Th, Ti, Tl, Tm, U, V, W, Y, Yb, Zn, Zr.
  - The analytical techniques and quality control protocols used are considered appropriate for the data to be used.
  - The Intertek Genalysis lab inserts its own standards and blanks at set frequencies and monitors the precision of the analyses. As well, the lab performs repeat analyses at random intervals, which return acceptably similar values to the original samples.
  - Laboratory procedures are within industry standards and are appropriate for the commodities of interest.
  - Industry certified Oreas standards were inserted in the RC chip sample stream every 50 samples, and field duplicates were collected every 50 samples. Only industry certified base metal standard were used. All standards will be scrutinized to ensure they fell within acceptable tolerances.

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**Verification of Sampling and Assaying**

- *The verification of significant intersections by either independent or alternative company personnel.*
  - *The use of twinned holes.*
  - *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic)*
- Consultant geologists, from Apex Geoscience Australia Pty Ltd, were involved in the logging of the RC drilling. Apex was involved in the whole process including drill hole supervision, chip sample collection and importing of the completed assay results. Drill hole logs were

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protocols.

- *Discuss any adjustment to assay data.*

inspected to verify the correlation of mineralised zones between assay results and lithology/alteration/mineralisation.

The entire chain of custody of this recent drilling was supervised by Apex Geoscience.

- The drill hole data was logged in a locked excel logging template and then imported into SQL database for long term storage and validation.
- Data was reported by the laboratory and no adjustment of data was undertaken.
- All assay results were verified by alternative company personnel and the Qualified Person before release.

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**Location of Data Points**

- *Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*
- *Specification of the grid system used.*
- *Quality and adequacy of topographic control.*

- RC drill hole locations and rock chip samples were picked up using a handheld Garmin GPS, considered to be accurate to  $\pm 5$  m.
- Downhole surveys have been completed at 30 m stations (and start and end of hole) using a downhole gyroscopic survey tool (AXIS). The holes were largely straight.
- All coordinates were recorded in MGA Zone 53 datum GDA94.
- Topographic control is provided by a Digital Terrain Model based on the 30 m Shuttle Radar Topographic Mission data.

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**Data Spacing and Distribution**

- *Data spacing for reporting of Exploration Results.*
- *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.*
- *Whether sample compositing has been applied.*

- The completed drill spacing is first pass in nature and is thought to be insufficient at this stage to confirm continuity of mineralisation that would be sufficient to support the definition of a mineral resource, and the classifications applied under the 2012 JORC code.

<b>Orientation of data in relation to geological structure</b>	<ul style="list-style-type: none"> <li>• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>• 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.</li> </ul> <ul style="list-style-type: none"> <li>• Where possible, drill holes at Bruce and Plenty River were angled to the south (180°), which is thought to be roughly across strike of the mineralisation and is generally considered the optimal drill orientation for this Prospect.</li> <li>• Drill holes were angled between 60-65°.</li> <li>• The MetalsGrove drilling sampling was reconnaissance based and targeted areas of mapped pegmatite in the area.</li> </ul>
<b>Sample security</b>	<ul style="list-style-type: none"> <li>• The measures taken to ensure sample security.</li> </ul> <ul style="list-style-type: none"> <li>• The sample security consisted of the RC chip samples being collected from the field into pre-numbered calico bags and loaded into polyweave bags for transport to the laboratory in Alice Springs where it was trucked to the Darwin laboratory for analysis. The chain of custody for samples from collection to delivery at the laboratory was handled by Apex Geoscience Australia personnel.</li> <li>• The sample submission was submitted by email to the lab, where the sample counts and numbers were checked by laboratory staff.</li> </ul>
<b>Audits or Reviews</b>	<ul style="list-style-type: none"> <li>• The results of any audits or reviews of sampling techniques and data.</li> </ul> <ul style="list-style-type: none"> <li>• No audit or review has been completed by an external party and is not warranted at the current stage of exploration.</li> </ul>

## Section 2 Reporting of Exploration Results

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

Criteria	JORC Code Explanation	Commentary
<b>Mineral Tenement and Land Tenure Status</b>	<ul style="list-style-type: none"> <li>• <i>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</i></li> <li>• <i>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The RC Drilling was collected from tenement EL31225.</li> <li>• There are no third-party arrangements or royalties etc. to impede exploration on the tenure.</li> <li>• There are no reserves or national parks to impede exploration on the tenure.</li> <li>• Ownership – 100% MetalsGrove Mining Ltd.</li> <li>• The tenement is in good standing.</li> </ul>
<b>Exploration Done by Other Parties.</b>	<ul style="list-style-type: none"> <li>• <i>Acknowledgment and appraisal of exploration by other parties.</i></li> </ul>	<ul style="list-style-type: none"> <li>• All historical work referenced in this report has been undertaken by previous project explorers. Whilst it could be expected that work and reporting practices were of an adequate standard, this cannot be confirmed.</li> </ul>
<b>Geology</b>	<ul style="list-style-type: none"> <li>• <i>Deposit type, geological setting and style of mineralization.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The Bruce project tenement covers Lower Proterozoic rocks along, and flanking, the Delny-Mt. Sainthill Fault Zone, a feature developed within a wide west-northwest trending tectonic zone. Most of the project tenement is overlaid by Quaternary alluvium and soils. The project tenement is host to the historical Plenty River Mica Mining Area. Near the centre of the tenement lies the historical Bruce Au-Cu occurrence. The prospect is associated with quartz veins, where east-trending quartz veins contain Cu and locally contain Au (up to 53 ppm Au; Wygralak and Mernagh 2005). The pegmatite outcrop hosting number of silicious and micaceous occurrences on the potential for LCT and REE bearing.</li> </ul>



## Drillhole Information

- A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drillholes:
- easting and northing of the drillhole collar elevation or RL (Reduced Level – elevation above sea level in metres) of the drillhole collar dip and azimuth of the hole
- down hole length and interception depth hole length.

## Data Aggregation Methods

- In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.
  - Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.
  - The assumptions used for any reporting of metal equivalent values should be clearly stated.
- A summary of the drill hole collar location of the RC drill has been included in previous press release (see ASX announcement dated 12 July 2023).
  - Where applicable when significant intercepts and aggregate data is reported they are weighted average grades considering variable sampling lengths. Some significant intercepts are significant because of multiple anomalous elements.
  - Standard element to stoichiometric oxide conversion factors are used in calculating and reporting oxide equivalent elements.
  - Rare Earth Elements (REE) converted to oxide equivalents were aggregated as total rare earth elements TREO or Total Rare Earth Oxide elements and combined as Heavy Rare Earth Elements (HREO), Light Rare Earth Elements (LREO), Magnetic Rare Earth Oxide (MREO) using industry standards. HREO, LREO and MREO as a percentage of TREO may also be reported.
  - TREO refers to the sum of all 15 REE's in their respective oxide equivalent ( $\text{La}_2\text{O}_3 + \text{CeO}_2 + \text{Pr}_6\text{O}_{11} + \text{Nd}_2\text{O}_3 + \text{Sm}_2\text{O}_3 + \text{Eu}_2\text{O}_3 + \text{Gd}_2\text{O}_3 + \text{Tb}_4\text{O}_7 + \text{Dy}_2\text{O}_3 + \text{Ho}_2\text{O}_3 + \text{Er}_2\text{O}_3 + \text{Tm}_2\text{O}_3 + \text{Yb}_2\text{O}_3 + \text{Y}_2\text{O}_3 + \text{Lu}_2\text{O}_3$ ).
  - MREO refers to the 4 Magnetic Rare Earth Oxides

		(Nd <sub>2</sub> O <sub>3</sub> +Pr <sub>2</sub> O <sub>3</sub> +Dy <sub>2</sub> O <sub>3</sub> +Tb <sub>2</sub> O <sub>3</sub> )
		<ul style="list-style-type: none"> <li>HREO refers to the Heavy Rare Earth Oxides (Eu<sub>2</sub>O<sub>3</sub>+Gd<sub>2</sub>O<sub>3</sub>+Tb<sub>2</sub>O<sub>3</sub>+Dy<sub>2</sub>O<sub>3</sub>+Ho<sub>2</sub>O<sub>3</sub>+Er<sub>2</sub>O<sub>3</sub>+Tm<sub>2</sub>O<sub>3</sub>+Yb<sub>2</sub>O<sub>3</sub>+Y<sub>2</sub>O<sub>3</sub>+Lu<sub>2</sub>O<sub>3</sub>).</li> <li>LREO refers to the Light Rare Earth Oxides (La<sub>2</sub>O<sub>3</sub>+Ce<sub>2</sub>O<sub>3</sub>+Pr<sub>2</sub>O<sub>3</sub>+Nd<sub>2</sub>O<sub>3</sub>+Sm<sub>2</sub>O<sub>3</sub>).</li> </ul>
<b>Relationship Between Mineralisation Widths and Intercept Lengths</b>	<ul style="list-style-type: none"> <li>If the geometry of the mineralisation with respect to the drillhole angle is known, its nature should be reported.</li> </ul>	<ul style="list-style-type: none"> <li>Drill holes at the project were angled between 60-65° and to the south, corresponding to roughly perpendicular to the orientation of the mapped outcrops.</li> <li>Sections show identified mineralisation downhole. Some holes drilled in a deliberate orientation to gain perspective of structural or stratigraphic orientation and as such will not be a direct reflection of true thickness. All reported lengths are to be considered downhole lengths unless stated as calculated true thickness.</li> </ul>
<b>Diagrams</b>	<ul style="list-style-type: none"> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drillhole collar locations and appropriate sectional views.</li> </ul>	<ul style="list-style-type: none"> <li>See maps in the body of the report.</li> </ul>
<b>Balanced Reporting</b>	<ul style="list-style-type: none"> <li>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced avoiding misleading reporting of Exploration Results.</li> </ul>	<ul style="list-style-type: none"> <li>All relevant information is reported within the document or included in the appendices if not reported previously.</li> </ul>
<b>Other Substantive Exploration Data</b>	<ul style="list-style-type: none"> <li>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey</li> </ul>	<ul style="list-style-type: none"> <li>All meaningful data and relevant information have been included in the body of the report.</li> </ul>

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results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.

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**Further Work**

- The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).
  - Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.
- Future work entails follow up drilling to test any anomalous mineralised zones intersected in this program.
-