ASX ANNOUNCEMENT
Heavy Rare Earths Limited (ASX: HRE)
1 December 2022

RARE EARTHS EXTEND BEYOND EXISTING COWALINYA RESOURCE

- **Assays received for 53 holes from HRE's rare earth exploration and resource expansion drilling program of 421 holes at Cowalinya**
- **Drilling intersects thick sequences of rare earth mineralisation in saprolite along five exploration traverses**
- **Coherent zones of mineralisation discovered which are similar in nature and potential size to the Cowalinya deposit**
- **Total rare earth assays of up to 2255 ppm TREO returned**
- **Rare earth grades exceed the Cowalinya resource grade in 21 drill intervals up to 22 metres thick. These include:**
  - **AC122: 5 metres @ 1258 ppm TREO (27.6% magnet REOs) from 16 metres**
    - **including 2 metres @ 2255 ppm TREO from 18 metres**
  - **AC115: 7 metres @ 1042 ppm TREO (27.1% magnet REOs) from 22 metres**
    - **including 2 metres @ 1922 ppm TREO from 26 metres**
  - **AC110: 11 metres @ 826 ppm TREO (26.2% magnet REOs) from 18 metres**
    - **including 2 metres @ 1727 ppm TREO from 22 metres**
  - **AC136: 7 metres @ 795 ppm TREO (21.8% magnet REOs) from 14 metres**
    - **including 2 metres @ 1457 ppm TREO from 18 metres**
  - **AC142: 11 metres @ 768 ppm TREO (25.9% magnet REOs) from 15 metres**
    - **including 6 metres @ 1061 ppm TREO from 14 metres**
  - **AC137: 14 metres @ 758 ppm TREO (26.3% magnet REOs) from 15 metres**
    - **including 4 metres @ 1018 ppm TREO from 23 metres**
  - **AC130: 20 metres @ 726 ppm TREO (22.4% magnet REOs) from 18 metres**
    - **including 4 metres @ 1036 ppm TREO from 18 metres**
    - **including 2 metres @ 1013 ppm TREO from 32 metres**
- **Thicker saprolite drilled to the west and south of the Cowalinya South deposit – assays pending**

Heavy Rare Earths Limited (**"HRE"** or **"the Company"**) is pleased to report initial assays from 53 of 421, or 13%, of the planned exploration and resource expansion drilling at its 100 per cent-owned Cowalinya rare earth project in the Norseman-Esperance region of Western Australia.

These 53 vertical air core holes, drilled on 200 metre centres to depths of between 7 and 52 metres, were amongst the first 92 holes drilled in the current program along five north-south and east-west lines up to 4.2 kilometres long (Figure 1). These drill lines were designed to explore for thick developments of clay-rich mineralised saprolite on the Company's E63/1972 tenement primarily to the south and south-east, but also immediately east and west, of the Cowalinya South rare earth deposit, and be used to guide subsequent grid-based resource expansion drilling. Their locations were determined using a combination of publicly available airborne electromagnetic and magnetic, and digital elevation model data. Clay-rich saprolite has been demonstrated to host rare earth mineralisation at Cowalinya which to date has yielded 28 million tonnes @ 625 ppm TREO (total rare earth oxide) in Inferred Resources.[1]

Drilling by HRE in the current program has successfully intersected saprolite along all five exploration drill traverses. Saprolite averages 17.1 metres thick along these traverses which compares with 17.7 metres for the Cowalinya resource. In the subsequent 207 air core holes which are drilled on 200 x 400 metre centres mainly to the west and south of the Cowalinya South resource, and for which assays are awaited (see Figure 1), the average thickness of saprolite increases by 29.8% to 22.2 metres.

Table 1 lists rare earth assays for all mineralised intercepts in the 53 reported holes (AC110-143, AC175-181, AC186-197) where their grade-thickness exceeds the average grade-thickness of the mineralised horizon in the Cowalinya resource (8.5 metres thick @ 625 ppm TREO). The holes that host these intercepts are highlighted in Figure 1 with the hole furthest from the Cowalinya South resource being AC136, 4.2 kilometres away.

Table 1: Mineralised saprolite intervals from current drilling that exceed the average grade-thickness of the mineralised horizon in the Cowalinya resource.

HOLE NO.	FROM (m)	TO (m)	THICKNESS (m)	TREO (ppm)	TREO-CeO_2 (ppm)	Magnet REOs/TREO (%)
AC110	18	29	11	826	606	26.2
AC111	16	30	14	712	511	27.9
AC112	19	29	10	663	530	29.2
AC115	22	29	7	1042	777	27.1
AC118	19	35	16	396	244	22.0
AC119	16	25	9	673	345	22.9
AC122	16	21	5	1258	763	27.6
AC123	15	18	3	1000	519	25.0
AC124	14	30	16	539	347	22.5
AC129	15	25	10	740	398	22.5

[1] Table 5.1 of Appendix 7 (Cowalinya Resource Report) of the Independent Geologist's Report contained in HRE's IPO Prospectus.

AC130	18	38	20	726	397	22.4
AC134	6	18	12	632	320	19.4
AC136	14	21	7	795	535	21.8
AC137	15	29	14	758	568	26.3
AC142	14	25	11	768	393	25.9
AC175	22	44	22	576	381	21.8
AC178	28	40	12	563	389	26.0
AC179	14	36	22	665	461	24.8
AC181	15	26	11	745	550	27.3
AC191	18	30	12	456	305	24.1
AC193	20	40	20	448	284	24.3
AC194	20	28	8	727	613	24.1
AC195	15	30	15	541	280	21.3
AC196	19	37	18	631	413	23.2

TREO = La_2O_3+CeO_2+Pr_6O_{11}+Nd_2O_3+Sm_2O_3+Eu_2O_3+Gd_2O_3+Tb_4O_7+Dy_2O_3+Ho_2O_3+Er_2O_3+Tm_2O_3+Yb_2O_3+Lu_2O_3+Y_2O_3
Magnet REOs = Pr_6O_{11}+Nd_2O_3+Tb_4O_7+Dy_2O_3

These new results are broadly comparable to previous results that established the existing resource at Cowalinya. Drill intersections from drilling in 2021 include:

- AC29: 19 metres @ 1498 ppm TREO (27.4% magnet REOs) from 20 metres
- AC89: 17 metres @ 1205 ppm TREO (25.7% magnet REOs) from 26 metres
- AC28: 27 metres @ 951 ppm TREO (29.5% magnet REOs) from 12 metres
- AC02: 24 metres @ 892 ppm TREO (28.2% magnet REOs) from 8 metres
- AC04: 18 metres @ 719 ppm TREO (23.3% magnet REOs) from 17 metres.

The relationship between upper and lower saprolite, and rare earth mineralisation, is highlighted in cross sections in Figures 3 to 5 along three of the five exploration drill traverses. This relationship is consistent with that observed in the Cowalinya resource where mineralisation tends concentrate in the lower saprolite unit, but not exclusively so. Coherent zones of mineralisation are evident along each drill traverse as follows:

- Figure 3: AC110-111-112 (400-metre-wide zone) and AC115-116-117-118-119 (800-metre-wide zone) along drill traverse A-B
- Figure 4: AC122-123-124 (400-metre-wide zone) and AC129-130-131 (400-metre-wide zone) along north-south drill traverse C-D
- Figure 5: AC178-179-180-181 (600-metre-wide zone) and AC190-191-192-193-194-195-196-197 (1400-metre-wide zone) along east-west drill traverse E-F.

These compare to the mineralised horizon at Cowalinya which has maximum dimensions of 1200 metres north-south and 1000 metres east-west.

On reviewing the initial assays, HRE Executive Director, Richard Brescianini, commented, "We are very pleased with the results from drilling at our Cowalinya rare earth project. Despite having received assays from only 13% of the holes, we have already confirmed the presence of thick, saprolite-hosted rare earth mineralisation more than four kilometres away from our existing resource. The potential to grow our rare earth resource base at Cowalinya improves with every hole drilled.

"Today's findings are very promising. We look forward to the period ahead as results continue to flow."

Assays for the balance of the 368 drillholes from the program will be reported by the Company when they are complete.

-- Ends --

This announcement has been approved by the Board of HRE.

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About Heavy Rare Earths Limited
Heavy Rare Earths Limited (ASX:HRE) is an Australian rare earth exploration and development company. HRE's key exploration project is Cowalinya, near Norseman in Western Australia. This is a clay-hosted rare earth project with a JORC Inferred Resource of 28Mt @ 625 ppm TREO and a desirable rare earth composition where 25% are the valuable magnet rare earths and 23% the strategic heavy rare earths.

Competent Persons Statement
The Exploration Results contained in this announcement were compiled by Mr. Richard Brescianini. Mr. Brescianini is a member of the Australian Institute of Geoscientists (AIG). He is a director and full-time employee of Heavy Rare Earths Limited. Mr. Brescianini has more than 35 years' experience in mineral exploration and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration to qualify as a Competent Person as defined in the 2012 JORC Code.

The Mineral Resources contained in this announcement have been extracted from the Independent Geologist's Report included in the Company's Initial Public Offering (IPO) Prospectus, a copy of which was lodged with the Australian Securities and Investments Commission (ASIC) on 5 July 2022. The Company confirms that it is not aware of any new information or data that materially affects the Mineral Resources as contained in the Company's IPO Prospectus. All material assumptions and technical parameters underpinning the Mineral Resources in the Company's IPO Prospectus continue to apply and have not materially changed.

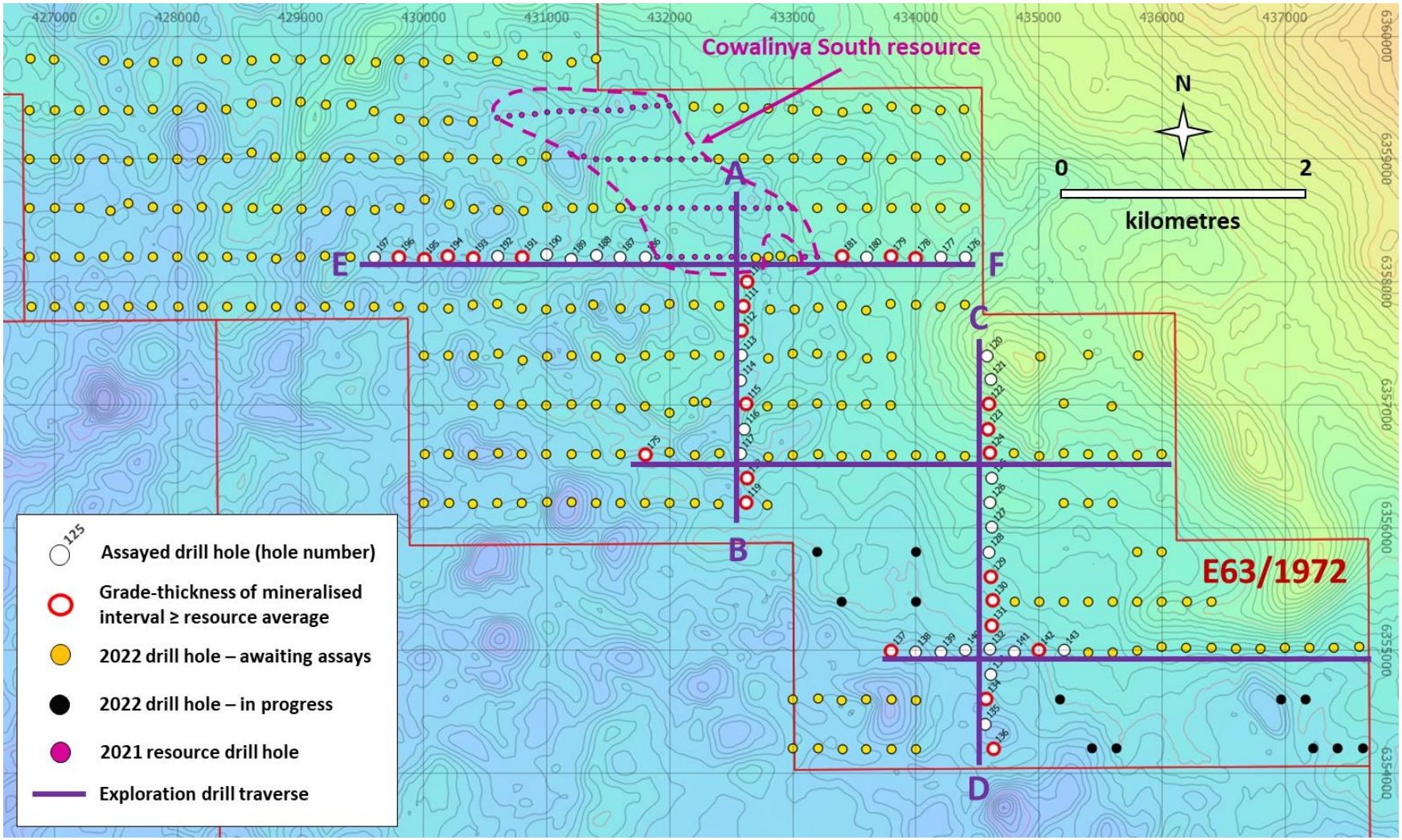

Figure 1: Plan view of Cowalinya air core drilling in the south-east portion of E63/1972.
Background image: Landgate digital elevation model.

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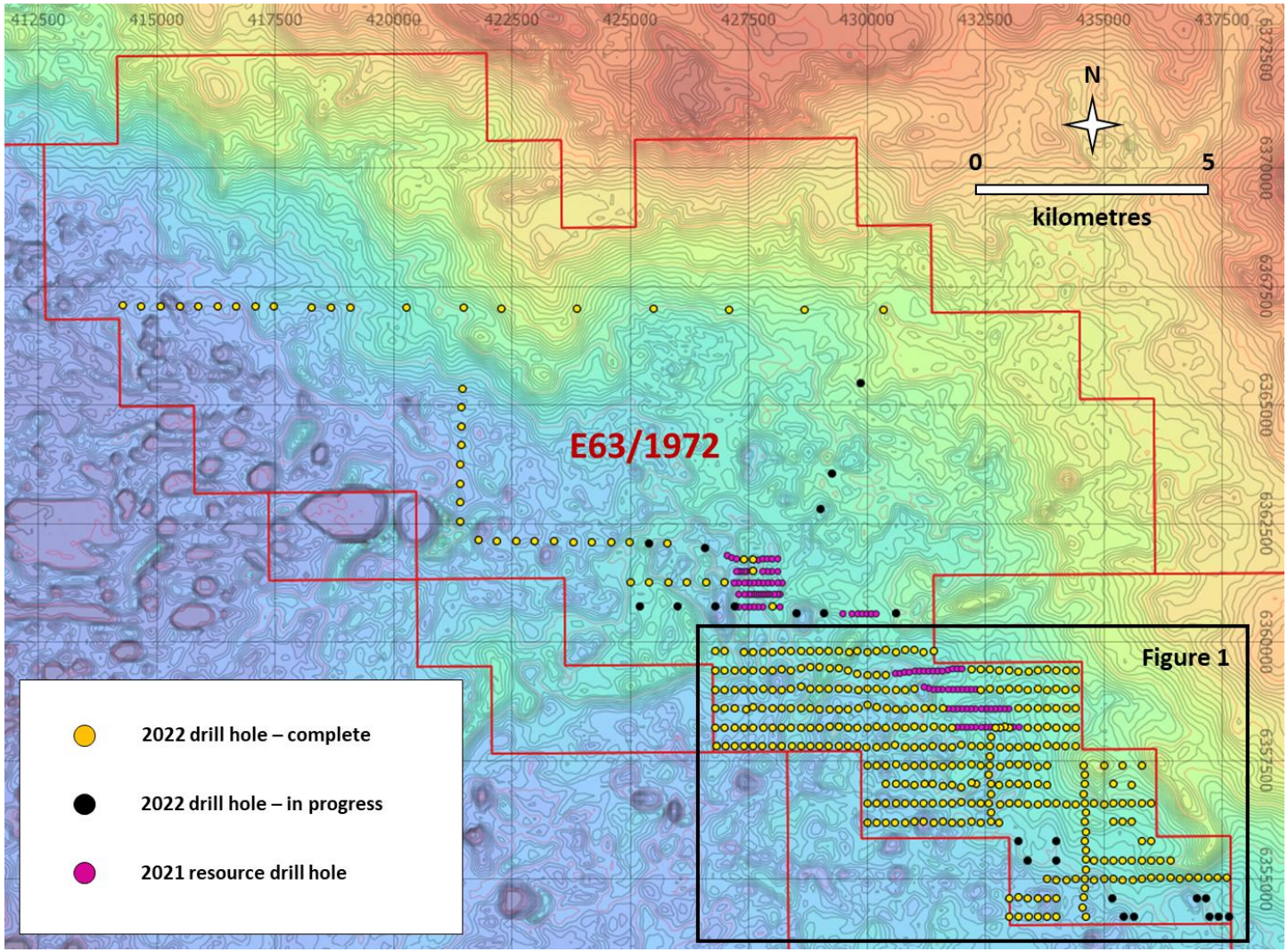

Figure 2: Plan view of Cowalinya air core drilling.
Background image: Landgate digital elevation model.

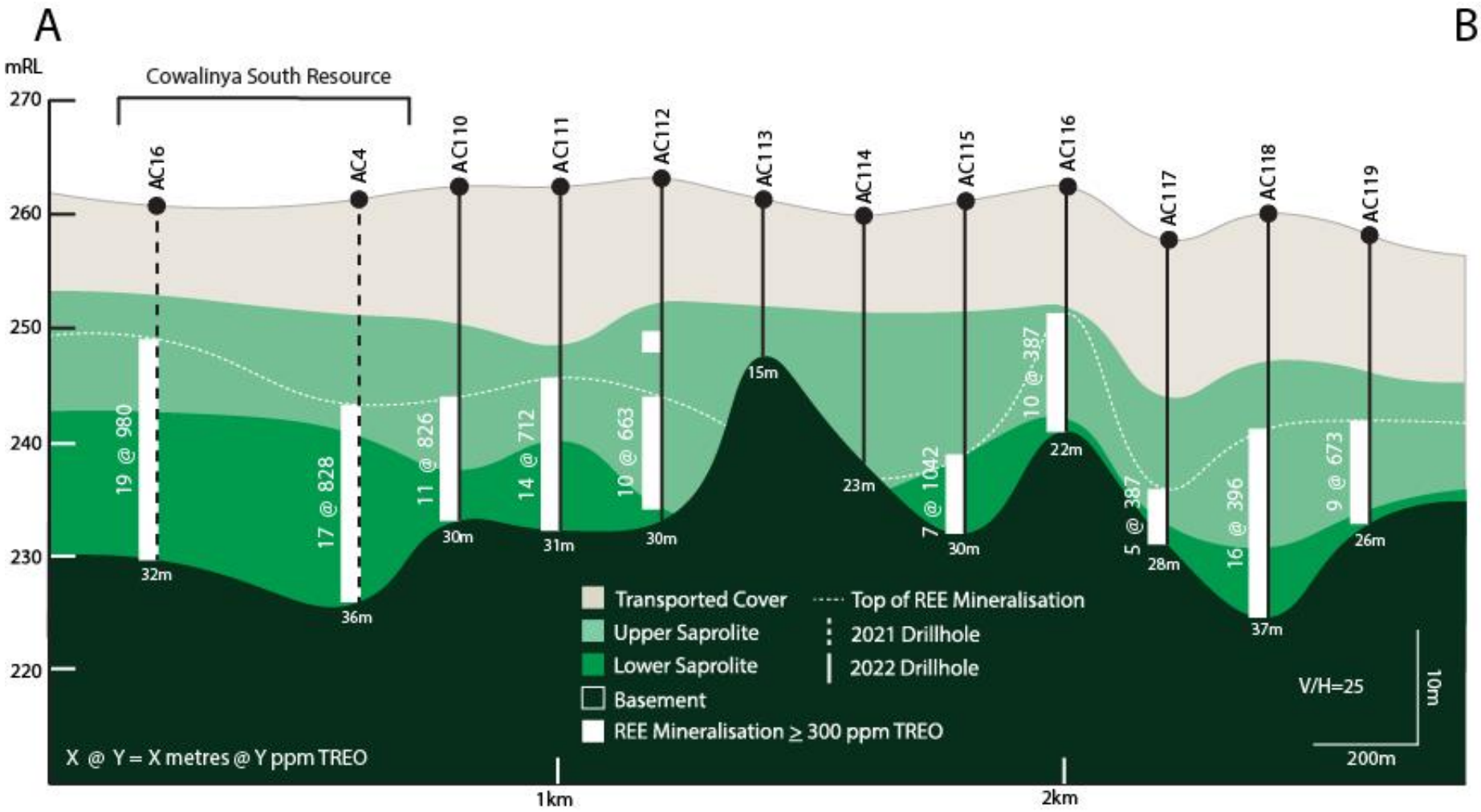

Figure 3: Cross section along north-south exploration drill line A-B (432600E).
Location of A-B shown on Figure 1.

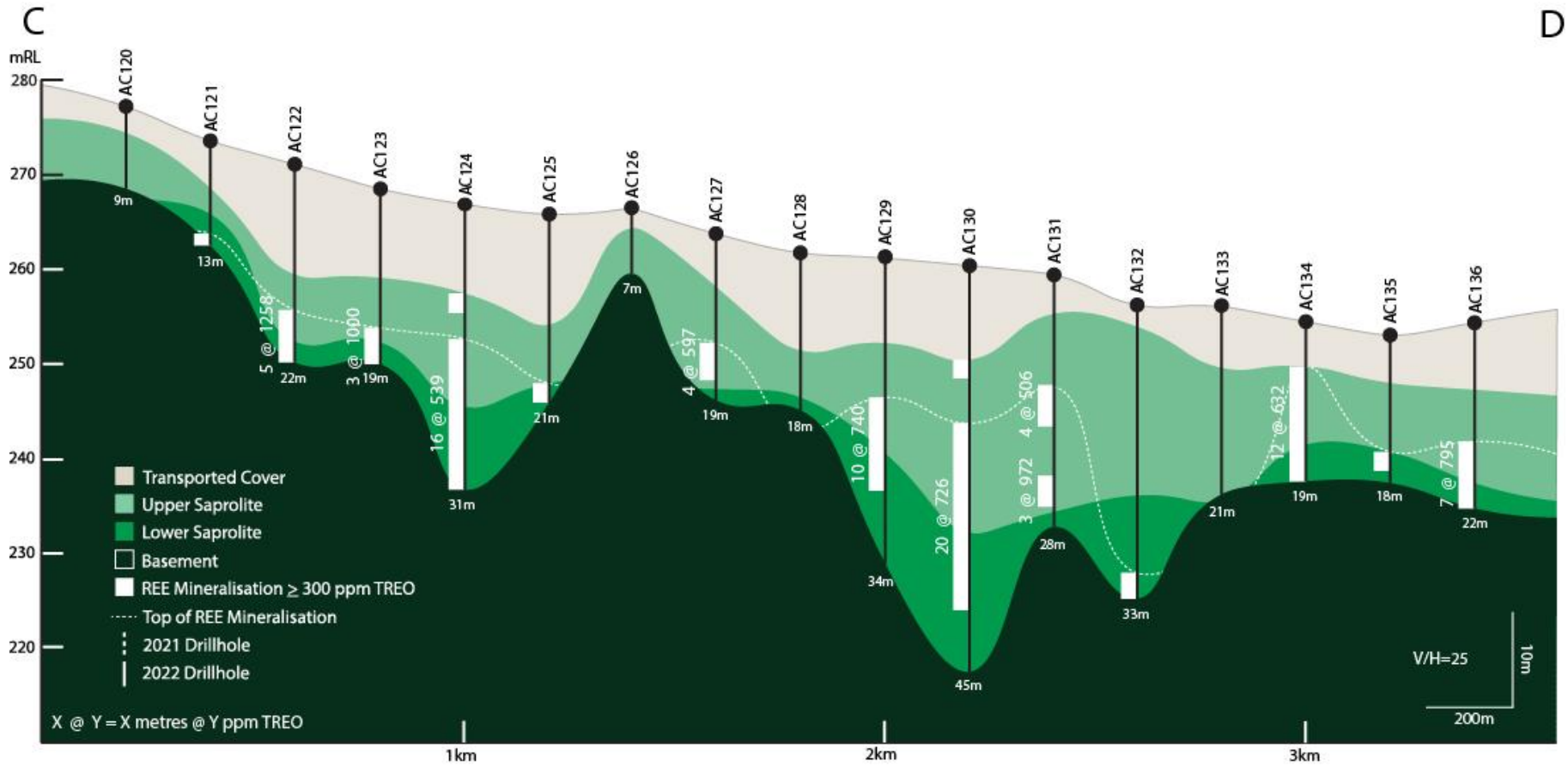

Figure 4: Cross section along north-south exploration drill line C-D (434600E).
Location of C-D shown on Figure 1.

Figure 5: Cross section along west-east exploration drill line E-F (6358200N).
Location of E-F shown on Figure 1.

Table 2: Mineralised saprolite intervals that assay ≥300 ppm TREO.

HOLE NO.	FROM (m)	TO (m)	INTERVAL (m)	TREO (ppm)	TREO-CeO_2 (ppm)	Magnet REOs/TREO (%)
AC110	18	20	2	444	367	28.2%
AC110	20	22	2	542	400	25.9%
AC110	22	24	2	1727	1367	30.9%
AC110	24	26	2	489	326	24.5%
AC110	26	28	2	697	437	22.5%
AC110	28	29	1	1287	873	24.0%
AC111	10	12	2	418	115	12.1%
AC111	12	14	2	469	173	14.4%
AC111	16	18	2	611	393	24.7%
AC111	18	20	2	433	322	31.3%
AC111	20	22	2	667	465	29.9%
AC111	22	24	2	1068	810	30.0%
AC111	24	26	2	818	580	25.8%
AC111	26	28	2	763	571	27.7%
AC111	28	30	2	626	436	26.0%
AC112	13	15	2	638	543	28.5%
AC112	19	21	2	425	349	29.1%
AC112	21	23	2	1482	1307	34.1%
AC112	23	25	2	413	335	30.9%
AC112	25	27	2	477	346	28.3%
AC112	27	29	2	518	313	23.4%
AC115	22	24	2	377	215	22.5%
AC115	24	26	2	527	327	26.4%
AC115	26	28	2	1922	1513	32.2%
AC115	28	29	1	1639	1331	27.2%

AC116	9	11	2	315	246	19.9%
AC116	11	13	2	304	193	20.1%
AC116	13	15	2	297	185	21.8%
AC116	15	17	2	344	196	16.4%
AC116	17	19	2	298	158	16.7%
AC116	19	21	2	690	357	21.6%
AC117	22	24	2	438	226	18.0%
AC117	24	26	2	353	193	18.0%
AC117	26	27	1	354	189	18.1%
AC118	19	21	2	363	229	22.8%
AC118	21	23	2	337	209	22.9%
AC118	23	25	2	468	328	24.7%
AC118	25	27	2	343	202	20.2%
AC118	27	29	2	298	179	21.5%
AC118	29	31	2	447	255	19.3%
AC118	31	33	2	415	255	22.4%
AC118	33	35	2	497	291	22.5%
AC119	16	18	2	463	244	23.8%
AC119	18	20	2	1148	590	24.6%
AC119	20	22	2	667	323	21.4%
AC119	22	24	2	544	287	22.1%
AC119	24	25	1	410	219	22.4%
AC121	11	12	1	580	317	21.9%
AC122	16	18	2	427	252	26.3%
AC122	18	20	2	2255	1379	27.9%
AC122	20	21	1	929	551	29.3%
AC123	15	17	2	1230	626	22.6%
AC123	17	18	1	540	305	29.7%

AC124	8	10	2	303	216	25.6%
AC124	14	16	2	450	195	18.3%
AC124	16	18	2	600	407	26.2%
AC124	18	20	2	436	255	22.7%
AC124	20	22	2	395	250	23.7%
AC124	22	24	2	260	145	20.8%
AC124	24	26	2	768	498	20.3%
AC125	18	20	2	681	363	18.5%
AC127	12	14	2	555	293	22.6%
AC127	14	16	2	639	344	21.2%
AC129	15	17	2	349	264	34.7%
AC129	17	19	2	540	326	26.4%
AC129	19	21	2	538	261	18.4%
AC129	21	23	2	1930	957	18.4%
AC129	23	25	2	345	181	14.7%
AC130	10	12	2	383	334	25.5%
AC130	18	20	2	860	337	16.5%
AC130	20	22	2	1212	438	17.5%
AC130	22	24	2	274	178	27.7%
AC130	24	26	2	588	325	22.9%
AC130	26	28	2	537	284	21.5%
AC130	28	30	2	548	342	24.1%
AC130	30	32	2	439	267	23.6%
AC130	32	34	2	1013	615	25.7%
AC130	34	36	2	906	564	24.5%
AC130	36	38	2	881	616	19.9%
AC131	13	15	2	527	247	14.1%
AC131	15	17	2	486	224	19.4%

AC131	17	19	2	250	114	18.3%
AC131	19	21	2	216	96	16.1%
AC131	21	23	2	221	102	15.5%
AC131	23	25	2	1000	455	23.1%
AC131	25	26	1	917	459	22.2%
AC132	29	31	2	355	267	27.0%
AC132	31	32	1	302	245	27.7%
AC134	6	8	2	329	196	18.2%
AC134	8	10	2	245	143	16.4%
AC134	10	12	2	397	183	13.4%
AC134	12	14	2	615	272	17.3%
AC134	14	16	2	1602	805	26.4%
AC134	16	18	2	602	323	24.4%
AC135	14	16	2	488	305	10.8%
AC136	14	16	2	508	311	14.8%
AC136	16	18	2	527	334	21.2%
AC136	18	20	2	1457	1059	28.2%
AC136	20	21	1	577	337	24.4%
AC137	15	17	2	544	385	29.2%
AC137	17	19	2	1024	897	35.8%
AC137	19	21	2	447	291	20.5%
AC137	21	23	2	688	420	26.1%
AC137	23	25	2	904	590	29.8%
AC137	25	27	2	1132	944	22.7%
AC137	27	28	1	675	561	18.6%
AC137	28	29	1	453	331	21.5%
AC139	16	18	2	330	205	25.1%
AC139	18	20	2	730	450	21.9%

AC139	20	22	2	432	278	23.5%
AC139	26	28	2	389	256	29.1%
AC139	28	30	2	395	276	26.0%
AC139	30	32	2	433	284	23.2%
AC140	14	16	2	309	157	11.4%
AC140	20	21	1	669	311	17.4%
AC141	13	15	2	336	157	17.0%
AC141	15	17	2	691	350	25.7%
AC142	6	8	2	460	226	12.9%
AC142	14	16	2	802	382	18.6%
AC142	16	18	2	1526	764	26.9%
AC142	18	20	2	854	421	23.2%
AC142	20	22	2	389	226	32.8%
AC142	22	24	2	344	197	28.6%
AC142	24	25	1	615	339	24.4%
AC143	28	30	2	353	170	19.2%
AC143	32	33	1	373	196	18.3%
AC175	10	12	2	355	190	17.8%
AC175	12	14	2	1286	677	20.7%
AC175	14	16	2	696	428	23.8%
AC175	22	24	2	552	386	25.6%
AC175	24	26	2	398	229	19.1%
AC175	26	28	2	493	295	20.8%
AC175	28	30	2	648	437	21.1%
AC175	30	32	2	742	583	27.1%
AC175	32	34	2	784	512	20.9%
AC175	34	36	2	487	291	20.7%
AC175	36	38	2	568	364	21.2%

AC175	38	40	2	623	410	20.2%
AC175	40	42	2	529	352	21.7%
AC175	42	44	2	511	334	21.8%
AC176	29	31	2	576	325	26.7%
AC176	31	32	1	761	465	29.1%
AC178	6	8	2	338	237	24.7%
AC178	8	10	2	564	387	22.2%
AC178	28	30	2	721	431	30.0%
AC178	30	32	2	874	573	29.5%
AC178	32	34	2	503	360	26.8%
AC178	34	36	2	405	300	24.4%
AC178	36	38	2	494	360	26.1%
AC178	38	40	2	383	310	19.5%
AC178	44	46	2	336	236	22.0%
AC179	8	10	2	429	268	21.4%
AC179	14	16	2	486	350	24.9%
AC179	16	18	2	2176	1576	27.3%
AC179	18	20	2	1177	927	24.6%
AC179	20	22	2	347	184	21.0%
AC179	22	24	2	760	584	32.4%
AC179	24	26	2	272	149	22.1%
AC179	26	28	2	614	341	23.2%
AC179	28	30	2	243	145	21.4%
AC179	30	32	2	454	272	22.3%
AC179	32	34	2	425	278	25.4%
AC179	34	36	2	361	262	27.7%
AC180	18	20	2	367	207	19.9%
AC180	20	22	2	519	304	22.0%

AC180	22	24	2	581	357	22.4%
AC180	24	26	2	631	382	23.0%
AC181	15	17	2	383	330	28.5%
AC181	17	19	2	1284	1056	35.6%
AC181	19	21	2	579	459	28.1%
AC181	21	23	2	601	377	21.3%
AC181	23	25	2	1045	671	24.9%
AC181	25	26	1	410	260	23.0%
AC189	18	20	2	303	211	28.5%
AC189	24	26	2	339	166	27.3%
AC190	26	28	2	431	207	19.7%
AC190	28	29	1	704	487	26.7%
AC191	18	20	2	642	412	24.1%
AC191	20	22	2	197	132	23.1%
AC191	22	24	2	449	285	23.0%
AC191	24	26	2	313	197	22.2%
AC191	26	28	2	430	277	25.0%
AC191	28	30	2	703	529	26.9%
AC192	29	31	2	439	264	26.3%
AC192	31	32	1	1618	1022	26.4%
AC193	20	22	2	692	410	23.4%
AC193	22	24	2	321	197	24.9%
AC193	24	26	2	222	147	24.3%
AC193	26	28	2	397	246	24.3%
AC193	28	30	2	390	242	23.4%
AC193	30	32	2	482	273	22.0%
AC193	32	34	2	347	220	25.3%
AC193	34	36	2	369	239	26.6%

AC193	36	38	2	817	568	24.2%
AC193	38	40	2	441	297	24.8%
AC194	20	22	2	526	232	19.7%
AC194	22	24	2	1096	1009	37.6%
AC194	24	26	2	916	866	24.6%
AC194	26	28	2	369	346	14.6%
AC194	34	36	2	340	205	24.6%
AC194	36	38	2	264	166	25.8%
AC194	38	40	2	335	204	25.8%
AC194	40	42	2	408	235	25.8%
AC194	42	44	2	273	163	26.8%
AC194	44	46	2	305	180	25.1%
AC195	9	11	2	480	420	39.2%
AC195	15	17	2	474	324	30.5%
AC195	17	19	2	738	456	30.0%
AC195	19	21	2	976	433	19.9%
AC195	21	23	2	471	154	11.7%
AC195	23	25	2	460	185	15.3%
AC195	25	27	2	493	254	18.3%
AC195	27	29	2	292	208	21.9%
AC195	29	30	1	300	171	23.7%
AC196	13	15	2	345	193	23.9%
AC196	19	21	2	620	118	6.9%
AC196	21	23	2	693	179	12.7%
AC196	23	25	2	365	217	22.4%
AC196	25	27	2	503	351	29.4%
AC196	27	29	2	817	711	34.2%
AC196	29	31	2	1441	1297	27.6%

AC196	31	33	2	496	375	25.7%
AC196	33	35	2	351	223	25.3%
AC196	35	37	2	395	248	24.7%
AC197	23	25	2	300	198	23.4%
AC197	31	33	2	341	198	25.0%
AC197	33	35	2	321	189	24.3%
AC197	35	37	2	444	249	25.0%

TREO = La_2O_3+CeO_2+Pr_6O_{11}+Nd_2O_3+Sm_2O_3+Eu_2O_3+Gd_2O_3+Tb_4O_7+Dy_2O_3+Ho_2O_3+Er_2O_3+Tm_2O_3+Yb_2O_3+Lu_2O_3+Y_2O_3.
Magnet REOs = Pr_6O_{11}+Nd_2O_3+Tb_4O_7+Dy_2O_3.

Table 3: Cowalinya air core holes for which rare earth assays are reported.

HOLE NO.	NORTHING (m)	EASTING (m)	RL (m)	DIP (°)	TOTAL DEPTH (m)
AC110	6358001	432626	262.6	-90	29
AC111	6357803	432597	262.9	-90	31
AC112	6357601	432581	263.4	-90	30
AC113	6357402	432583	261.5	-90	15
AC114	6357199	432578	259.7	-90	23
AC115	6357003	432618	260.7	-90	30
AC116	6356800	432607	262.1	-90	22
AC117	6356603	432572	258.0	-90	28
AC118	6356401	432628	259.9	-90	37
AC119	6356202	432620	258.4	-90	26
AC120	6357399	434581	277.7	-90	9
AC121	6357204	434609	274.7	-90	13
AC122	6357004	434595	272.0	-90	22
AC123	6356803	434584	269.5	-90	19
AC124	6356608	434598	267.4	-90	31
AC125	6356403	434617	266.9	-90	21
AC126	6356203	434604	267.3	-90	7
AC127	6356002	434615	264.8	-90	19
AC128	6355799	434592	263.3	-90	18
AC129	6355602	434612	262.7	-90	34
AC130	6355405	434624	261.9	-90	45
AC131	6355202	434614	261.0	-90	28
AC132	6355007	434602	257.9	-90	33
AC133	6354805	434610	257.4	-90	21
AC134	6354607	434568	256.0	-90	19
AC135	6354402	434559	254.7	-90	18
AC136	6354202	434630	255.9	-90	22
AC137	6354996	433799	256.4	-90	30
AC138	6354989	433999	256.1	-90	18
AC139	6354984	434201	257.6	-90	33
AC140	6355006	434403	258.9	-90	22
AC141	6354991	434800	257.5	-90	21

AC142	6354999	435001	259.9	-90	26
AC143	6355005	435204	261.9	-90	34
AC175	6356590	431801	258.7	-90	45
AC176	6358196	434400	269.0	-90	33
AC177	6358198	434200	268.7	-90	22
AC178	6358194	433996	267.9	-90	52
AC179	6358206	433800	267.6	-90	45
AC180	6358199	433599	266.9	-90	27
AC181	6358204	433399	265.5	-90	27
AC186	6358200	431800	261.9	-90	19
AC187	6358200	431599	260.8	-90	17
AC188	6358215	431401	260.4	-90	16
AC189	6358185	431201	261.0	-90	27
AC190	6358224	431000	260.7	-90	30
AC191	6358203	430802	259.6	-90	31
AC192	6358206	430603	259.1	-90	33
AC193	6358191	430401	257.4	-90	43
AC194	6358205	430198	257.7	-90	50
AC195	6358182	430003	256.9	-90	31
AC196	6358202	429801	257.2	-90	38
AC197	6358200	429601	257.2	-90	39

2012 JORC Code – Table 1

Section 1: Sampling Techniques and Data

Sampling techniques	Nature and quality of sampling (e.g., cut channels, random chips, or specific specialized 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.	By the end of the current program, a total of 530 vertical aircore holes will have been drilled by HRE on the Cowalinya project, 109 holes in 2021 and 421 holes in 2022. Maximum hole depth is 58m. All holes have been tested for supergene rare earth element (REE) mineralisation hosted by saprolitic clays. Drilling in 2021 overlapped extensively with areas previously aircore drilled by two companies exploring for gold (AngloGold Ashanti Ltd and Great Southern Gold Pty Ltd). One-metre samples are collected from a cyclone into plastic bags. All holes drilled in 2022 have been 2m composite sampled with 1m samples at end of hole. Overlying transported sediments are not routinely sampled as they do not contain anomalous amounts of REEs.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	For aircore drilling, regular air and manual cleaning of cyclone is being undertaken. Certified standards and duplicate samples are submitted with drill samples.
	Aspects of the determination of mineralisation that are Material to the Public Report.	Aircore drilling is used to obtain 1m samples which are collected in plastic bags. Samples ranging from 1m to 2m composites are taken for analysis. Sample size is 2-3kg in weight. At LabWest Minerals Analysis (LabWest) in Perth, Western Australia, samples are dried, crushed, split and pulverized with a 0.1g sub-sample set aside for assay.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	The drill type is aircore, a form of reverse circulation (RC) drilling using slim rods and a 3.5-inch blade bit. The samples recovered are typically rock chips and powder, similar to RC drilling.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Aircore recovery is visually assessed by comparing drill chip volumes in sample bags for individual metres. Estimates of sample recovery are recorded on drill logs. Routine checks for correct sample depths are undertaken. Aircore sample recoveries are visually checked for recovery, moisture and contamination and are considered to be acceptable within industry standards. The cyclone is routinely cleaned ensuring no material build up.

	Measures taken to maximize sample recovery and ensure representative nature of the samples.	Due to the generally good drilling conditions through dry saprolite the site geologist believes the samples are reasonably representative. Poor sample recovery is regularly recorded in the first couple of metres of a hole and often when hard bedrock is intersected – usually less than a full metre is recovered. Wet samples with moderate recoveries are encountered most often in the transported sand/silcrete layer lying immediately above saprolite.
	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.	No sample bias has been identified to date. Future studies will be undertaken.
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.	Chip/clay samples are geologically logged in enough detail to discern lithological units. Logging is appropriate for this style of drilling and current stage of the project.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is qualitative in nature.
	The total length and percentage of the relevant intersections logged.	All aircore holes are completely geologically logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	Not applicable.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	One-metre samples are collected from a cyclone into plastic bags. Two-metre composites and single metre samples are collected by spearing each plastic bag with a scoop down the side of the bag and dragging it back up the side of the bag so as not to lose any sample – this achieves a representative sample from top to bottom through the entire bag. The vast majority of samples are dry sampled.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Sampling technique is appropriate for the sample types and stage of the project.
	Quality control procedures adopted for all sub-sampling stages to maximize representivity of samples.	QAQC procedures involve the use of certified standards every 20th sample.
	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.	A field duplicate is taken every 20th sample.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample size of 2-3kg is considered appropriate to the grain size and style of mineralisation being investigated.

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.	Analyses are done at LabWest using their AF-02S technique: lithium meta/tetraborate fusion with ICP-MS/OES finish. This technique is considered to be a 'total' digest. A suite of 15 REEs – lanthanum (La), cerium (Ce), praseodymium (Pr), neodymium (Nd), samarium (Sm), europium (Eu), gadolinium (Gd), terbium (Tb), dysprosium (Dy), holmium (Ho), erbium (Er), thulium (Tm), ytterbium (Yb), lutetium (Lu), and yttrium (Y) – plus scandium (Sc), thorium (Th) and uranium (U), and oxides of aluminium (Al), calcium (Ca), iron (Fe), magnesium (Mg) and phosphorus (P), are measured.
	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.	Not applicable.
	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.	OREAS standards and/or blanks are inserted every 20th sample. Field duplicates are taken every 20th sample. LabWest uses OREAS standards, blanks and sample repeats. Acceptable levels of accuracy have been achieved.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections have yet to be verified by an independent geological consultant. They have been verified by alternative company geological personnel.
	The use of twinned holes.	No twinned holes have been drilled to date during the current program, however this is planned for the latter part of the campaign.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	All data have been entered into Excel spreadsheets.
	Discuss any adjustment to assay data.	No data has been adjusted.
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.	Hole collars are surveyed using a hand-held Garmin Etrex 22x GPS with ±3m accuracy. Northings, eastings and elevations are recorded using the hand-held GPS.
	Specification of the grid system used.	GDA94 z51.

	Quality and adequacy of topographic control.	The Cowalinya project is located in relatively flat terrain. Topographic control is provided by Landgate's Digital Elevation Model over the region which has an expected horizontal accuracy of 10m and vertical accuracy of 2m (both 95% confidence interval).
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Generally, 400m x 200m.
	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.	Data spacing is considered sufficient for this style of mineralisation to establish Inferred Mineral Resources. The mineralisation occurs as extensive, generally flat lying supergene blankets hosted in saprolitic clays.
	Whether sample compositing has been applied.	All holes have been assayed by 2m composite samples, compiled from 1m drilled samples. Additionally, a 1m end-of-hole sample is submitted for a 62 multi-element assay. A total of 730 samples (including standards, blanks and field duplicates) have been submitted for assay.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Sampling is likely to be unbiased as vertical holes are intersecting flat lying mineralisation.
	If the relationship between the drilling orientation and the orientation of key mineralized structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	It is unlikely to be biased.
Sample security	The measures taken to ensure sample security.	Experienced field assistants have undertaken the sampling and delivery of samples to the freight company in Esperance, which provides a direct delivery service to LabWest in Perth.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No audits or reviews have been commissioned to date.

Section 2: Reporting of Exploration Results

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.	Exploration licence E63/1972 is located 55 km east-north-east of Salmon Gums in Western Australia. It consists of 80 graticular blocks comprising an area of 224 km^2. It is situated on unallocated crown land. The registered holder of the tenement is Heavy Rare Earths Limited (HRE). Full native title rights have been granted over the tenement and surrounding lands to the Ngadju people, with whom cultural heritage surveys are undertaken in advance of substantial disturbance exploration works.
	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. There are no impediments to operating on the tenement other than requirements of the DMIRS and the Heritage Protection Agreement, all of which are industry standard.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	AngloGold Ashanti and Great Southern Gold previously worked in the area of E63/1972 exploring for gold mineralisation. Surface geochemical sampling and aircore drilling was undertaken by both companies but no significant gold mineralisation was discovered. Both companies assayed bottom of hole samples for a suite of multi-elements including REEs. Anomalous bedrock REE values were recorded in numerous holes from their drilling. Great Southern Gold also assayed for La and Ce for the entire length of a number of holes. AngloGold Ashanti flew an airborne magnetic/radiometric survey to assist with mapping of buried bedrock lithologies. Buxton Resources and Toro Energy also previously worked in the area of E63/1972 exploring for gold and nickel mineralisation and uranium mineralisation, respectively. Both companies flew time-domain electromagnetic surveys to aid in their exploration targeting. No significant mineralisation was discovered.
Geology	Deposit type, geological setting and style of mineralisation.	The deposit type being investigated is low grade saprolite clay-hosted supergene rare earth mineralisation. This style of supergene rare earth mineralisation is developed over bedrock granitic rock types (granites and granitic gneisses) which contain anomalous levels of REEs. Although low grade, low mining and processing costs can make this type of deposit profitable to exploit.

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.	All relevant data for the drilling is shown in Table 3.
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.	All REE assay results have been converted to oxide (REO) values using the following industry standard element-to-stoichiometric oxide conversion factors: La_2O_3 = La x 1.1728 CeO_2 = Ce x 1.2284 Pr_6O_{11} = Pr x 1.2082 Nd_2O_3 = Nd x 1.1664 Sm_2O_3 = Sm x 1.1596 Eu_2O_3 = Eu x 1.1579 Gd_2O_3 = Gd x 1.1526 Tb_4O_7 = Tb x 1.1762 Dy_2O_3 = Dy x 1.1477 Ho_2O_3 = Ho x 1.1455 Er_2O_3 = Er x 1.1435 Tm_2O_3 = Tm x 1.1421 Yb_2O_3 = Yb x 1.1387 Lu_2O_3 = Lu x 1.1371 Y_2O_3 = Y x 1.2699. These oxide values are summed to produce a TREO grade for each assay sample. Minimum grade cut-off used is 300ppm TREO. Maximum internal dilution is 2m @ <300ppm TREO. No high cut-off has been applied. Length weighted averages have been applied to intersections.

	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.	Intervals reporting >1000ppm TREO are reported separately.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent values have been used.
Relationship between mineralisation widths and intercept lengths	If the geometry of the mineralisation with respect to the drillhole angle is known, its nature should be reported. If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	To date the targeted mineralisation appears to occur in flat lying sheets and drill holes have all been drilled at 90° vertically. The down hole length of intercept is effectively a true thickness of mineralisation.
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 drillhole collar locations and appropriate sectional views.	Refer to Figures 1 and 2 for plan views of the Cowalinya drillhole collar locations. Refer to Figures 3-5 for drillhole sections.
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.	Summary assays for all mineralised intervals ≥300 ppm TREO are presented in Table 2.
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.	Preliminary metallurgical testwork has shown up to 91% TREO recovery from Cowalinya South using 5% hydrochloric acid at 30°C. U and Th values are reported as they are considered to be deleterious elements in rare earth processing. The highest values recorded for these elements on the project to date are 52ppm U_3O_8 and 81ppm ThO_2. Maximum values for all intersections reporting ≥300ppm TREO-CeO_2 in the current program are 38ppm U_3O_8 and 81ppm ThO_2.
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).	Aircore drilling is in progress to test for lateral extensions to mineralisation. Comprehensive metallurgical testwork is in progress and petrological studies will be completed to identify REE-bearing mineral species.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	HRE deems this to be commercially sensitive.