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Exploration & Evaluation

COPPER RANGE (SA) LTD

Larrimah Phosphate Project: EL's 28184 and 28185

RC Exploration Drilling, April – May 2012

Larrimah, Northern Territory

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Executive Summary

A 44 hole (1994.3m) regional exploration drilling program was carried out from 18/04/2012 to 14/05/2012 at the Larrimah Phosphate Project on EL's 28184 and 28185 on behalf of holder Copper Range Ltd.

The area of drilling covers parts of Tarlee, Avago, Western Creek, Middle Creek, Gorrie, Birdum Creek and Cow Creek stations to the west of the town of Larrimah, NT

Drilling at the Larrimah Project intersected significantly anomalous phosphate mineralization in a stratigraphic setting analogous to known major phosphate deposits in the Georgina Basin. Phosphate mineralization appears to be hosted by a zone of weathered clays, siltstones and cherty silcrete, located at the top of the Cambrian carbonate sequence.

A total of 187 samples were submitted to Amdel Darwin for analysis. These samples are mainly 5m composite spear samples. Significantly anomalous phosphate mineralisation was intersected at the top of the Cambrian sequence in a number of holes on EL28185, with a best intercept of 5m @ 1.97% P_2O_5 in LAC020.

Intersections of phosphate mineralisation deepen towards the south, while mineralisation appears absent to the North on EL28184. While no economic grade phosphate intercepts were obtained, the widely spaced, grass roots nature of the drilling program means that sufficient potential remains for the discovery of economic phosphate mineralisation on EL28185 that should be tested by further drilling.

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1 Introduction

A 44 hole (1994.3m) regional exploration drilling program was carried out from 18 April 2012 to 14 May 2012 at the Larrimah Phosphate Project on EL’s 28184 and 28185 on behalf of holder Copper Range Ltd.

While the program was conceived as a RC program with planned depths to 60m, technical issues with the drilling rig and ground conditions unfavourable for RC drilling determined that the program had to be carried out using aircore drilling to blade refusal with limited use of open-hole hammer. Despite the limitations of the aircore drilling, most of the objectives of the program (principally testing the upper part of the Cambrian Stratigraphy for phosphate mineralisation within economical depths) were achieved. Drilling achieved an average hole depth of 45m, and with only 7 holes abandoned prematurely in hard Cretaceous quartz-arenite and 4 holes abandoned in hard cherty-silcrete of uncertain age. Three out of 47 proposed holes were not drilled due to access problems.

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2 Location and Access

The area of drilling covers parts of Tarlee, Avago, Western Creek, Middle Creek, Gorrie, Birdum Creek and Cow Creek stations to the west of the town of Larrimah, NT. The main access to the area is along Western Creek Road, which runs from the Stuart Highway at Larrimah to Western Creek Station, and hence loops back to the Stuart Highway near Mataranka as the Gorrie/Dry River (Sturt Plateau Turnoff) access road. Within the stations access is along fence-lines, station tracks and the North Australian Railway corridor. Drill hole collar locations are shown in Figures 1 & 2.

3 Geology

All drill holes intersected a similar geological sequence, although individual parts of the stratigraphy may be absent.

A thin (0-7m) veneer of Quaternary cover, consisting of sandy to clayey alluvium or colluvium, overlies 0-40m of Tertiary or Lower Cretaceous, weathered, kaolinised, occasionally silicified or calcareous siltstone and claystone. A Tertiary (?) lateritic weathering profile is generally well developed in the siltstones, which hinders the distinction between possible Tertiary Siltstone of the Birdum Creek Beds and lateritised siltstone of the Cretaceous Mullaman Beds.

This siltstone unit in turn overlies a 2-30m sequence of Lower Cretaceous quartz sands, generally unconsolidated or poorly consolidated but occasionally cemented by silica, iron oxides or clays. The sands may contain intervals of clays or highly weathered claystone of 1-5m thickness; towards the southwest on Avago Station, the sands appear to be largely replaced by sandy siltstone and claystone, possibly representing a facies change. The sands range from fine silt through to pebble conglomerates, and are poorly sorted as far as can be determined from drill chips. In places the sands have a clayey matrix; while elsewhere even in the same hole they may consist of clean, washed quartz. This is reflected in the silica assays of the sands, which range from approximately 60% to a peak of 98.9%. In the holes drilled on Birdum Creek Station the siltstone unit was found to be absent and the contact between Quaternary cover and underlying Cretaceous sands is unclear because of a gradational reworking of the sands near the surface. Hole LAC033 was abandoned at 69m still in Cretaceous (?) claystone; this is the thickest intercept of the interpreted Cretaceous cover obtained from the drilling program. Figures 1 & 2 show the depth of the Quaternary to Cretaceous cover as well as the pre-Cretaceous basement lithology.

A 1-10m thick zone of yellow to brown clays or mudstone lies directly below the Cretaceous sands; this unit frequently contains bands and nodules of a hard cherty silcrete, and is occasionally ferruginised. It may contain intervals of siltstone. This unit could perhaps be interpreted as a pre-Cretaceous regolith, although some of the clay may be of the same type of claystone as is intercalated with the Cretaceous sands. This unit appears to host most of the phosphate mineralisation intercepted to date. Below this unit lies either a variable sequence of carbonate rocks, predominantly Cambrian limestone and dolomite, but sometimes siltstone or marl, or Cambrian Antrim Plateau Basalt. The limestone is generally a massive, tan-grey coloured rock, but in some holes it is porous and limonitic, while in LAC037 the dolomite is sandy, and easily confused with the Cretaceous unconsolidated sands.

It should be noted that few identifiable fossils were noted in the drill-chips, and the above assumed age of the rock units is based on broad lithological correlation with the regional stratigraphy established by the Northern Territory Geological Survey.

4 Drilling Contractor

The drilling was carried out by Australian Mineral and Water Well Drillers (AMWD) of Bendigo, Victoria using their Rig 3, a small truck mounted aircore/RAB rig with 175 psi air on board. For RC drilling a 4.5” RC hammer was used on the same rod string as used for aircore and a separate towed booster was used. The RC drilling failed because of a combination of factors including ground conditions, lack of experience and what seemed an unsuitable combination of relatively large hammer and thin 3” rods. Aircore drilling was more successful, although a more powerful rig may have performed better in the sands. A small RAB hammer (the same 4” hole size as the aircore blade) was used occasionally where shallow, hard layers prevented blade penetration in the absence of running sands; this was successful although time consuming and prevented the premature abandonment in Cretaceous cover in several holes.

A major flaw of Rig 3 is an inadequate cooling system; the rig is prone to overheating unless water is constantly trickled over the radiator. AMWD personnel claim that this is standard operating procedure for this rig, and while it no doubt works, it increases the reliance on sometimes distant water supplies and on several occasions caused the bogging or near bogging of the rig when attempting to move upon completion of a hole. This is a defect that should be considered if this rig is to be used for future work.

During the course of the drilling program several breakdowns occurred; all breakdowns of the rig were repaired within hours using available spare parts, and should be considered normal wear and tear. During the last days of the program the drillers support truck suffered a major breakdown that could not be repaired; this exacerbated the cooling water problems, but this was to some extent mitigated by borrowing water tanks and fuel drums from Avago Station and converting the drillers ute into a support vehicle.

Overall downtime, apart from that caused by missing equipment at the start of the program, was within expectations for a program of this nature. Aging equipment and abrasive sands contributed to downtime, but the drilling contractor was generally quick to remedy any defect and amenable to accepting alternatives.

5 Sampling and Assaying

All material below the base of the Cretaceous Sands was spear sampled, generally in 5m composite intervals, but occasionally in other intervals to suit lithological boundaries. Every 3^{rd} or 4^{th} hole was sampled from top to bottom in 5m intervals. This sampling appears to have been adequate to assess the presence or otherwise of traces of phosphate mineralisation. A representative sample of each metre drilled was collected in chip trays and is stored as a permanent record.

Samples were submitted to Amdel in Darwin for analysis. Samples were dried, riffle split to 100g and pulverised. Analysis was carried out by Lithium borate Fusion with ICP-AES or ICP-MS finish. Elements assayed for, with detection limits in % unless stated otherwise, are: Al_2O_3(0.01), CaO(0.01), Fe_2O_3(0.01), K_2O(0.01), MgO(0.01), MnO(0.01), Na_2O(0.01), P_2O_5(0.01), SiO_2(0.01), TiO_2(0.005), LOI(0.01), Cr(20ppm), V(20ppm) and U(0.5ppm).

The results of the assay sampling are provided in Appendix 1.

6 Mineralisation

The sampling returned a number of significantly anomalous intercepts as shown in **Table 1** below.

Table 1. Significant Intercepts, Larrimah Project. Coordinates in GDA94 Zone 53

Hole	East	West	From	To	P_2O_5%	Fe_2O_3%
LAC006	264042.00	8260921.0	37	42		44.3
LAC019	264296.00	8239993.0	44	53	1.48	
LAC020	265470.00	8234766.0	40	45	1.97	
LAC024	266728.00	8230087.0	41	47	0.18	
LAC026	267851.00	8224933.0	20	35	0.22	
LAC027	267511.00	8220346.0	46	51	0.58	
LAC029	262210.00	8218865.0	40	44	0.88	
LAC030	267201.00	8209780.0	60	63	1.9	
LAC032	267616.00	8205448.0	60	66	1.17	
LAC031	250874.00	8205269.0	40	45	0.39	
LAC036	256147.00	8205304.0	29	33	0.37	
LAC038	289092.00	8212389.0	16	21	0.26	

There appears to be little in the way of elemental association within the suite of compounds assayed for to distinguish various rock-types, apart from very high silica in the sands. Both basalts and laterite gravels are marked by more elevated V and Ti, but so are some zones of ferruginisation in the Cretaceous sands. Slightly elevated U is generally associated with P_2O_5 mineralisation.

6.1 Phosphate Mineralisation

The presence of significant rock phosphate in the interpreted Cretaceous rocks is restricted to some weak probably remobilised anomalism, e.g. LAC26 20-35m 0.22% P_2O_5 and LAC038 16-21 0.26% P_2O_5.

On the other hand, the zone of weathered claystones, siltstones and chert/silcrete below the base of the Cretaceous sands and above the massive carbonates in EL28185 occasionally hosts strongly anomalous phosphate mineralisation, e.g. LAC020 40-45m 1.97% P_2O_5, (Photo 1).

It is not yet clear if this is primary mineralisation or a secondary enrichment caused by weathering of the limestone sequence prior to or after deposition of the Cretaceous sands, but it is most likely that primary phosphate was deposited in this zone, followed perhaps by secondary enrichment. While it was rarely possible to penetrate the Cambrian Limestone sequence for more than a few metres, none of the phosphate anomalous assay results appear to be clearly associated with fresh carbonate, but always with the overlying weathered unit, although in some cases fresh or weakly oxidised carbonate is included in an anomalous composite sample at the base of the hole. There appears to be no relationship between phosphate mineralisation and underlying carbonate type; mineralisation appears to be developed over dolomite, dolomitic limestone and limestone as differentiated based on CaO/MgO assays. It is as yet unclear if the variable MgO content of the carbonates has a stratigraphic control, or is only a function of past porosity-permeability independent of the Cambrian stratigraphy.

A potentially important observation is the apparent loose association of anomalous intercepts with a trough-like zone of deepening Cretaceous cover; this is in contrast with the reported association of phosphate mineralisation with basement highs in the Georgina Basin. This could imply secondary enrichment by migration of phosphate-rich fluids through the Cretaceous sands to a basin low. It should be noted that any interpretation of basement topography would need to be confirmed by a drill hole collar survey as the observed changes in depth to basement are mostly within the expected 10-30m elevation accuracy of the GPS used, and could partly be a function of present day surface topography.

Most significant intercepts are in the western half of EL28185, suggesting a 5-10km wide N-S trending zone of phosphate anomalism roughly coincident with the railway corridor.

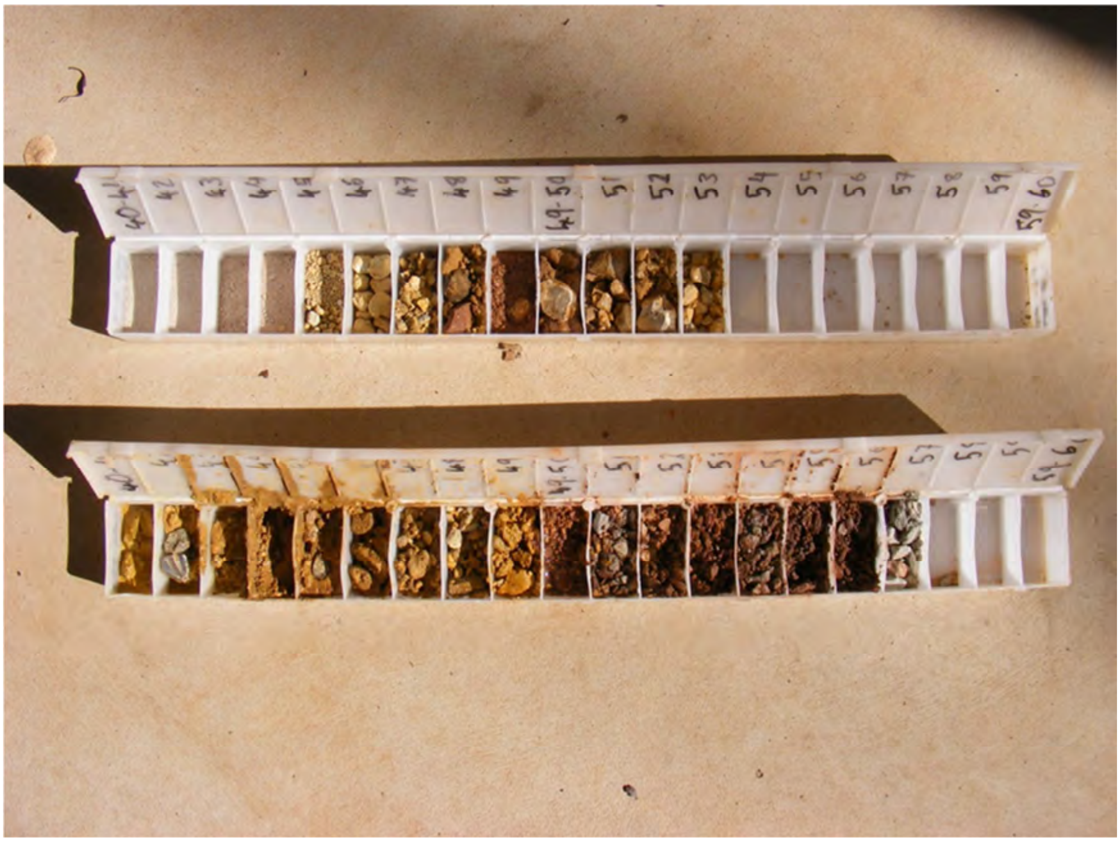

Photo 1. LAC019 (above, 44-53m) and LAC020 (below, 40-45m) phosphate mineralised intercepts.

6.2 Iron Ore Mineralisation

Hole LAC006 intersected a few metres of low grade hematite at the interpreted Cretaceous/Cambrian boundary; it is unlikely that this is of economic significance, as it probably represents a local enrichment, although given the 5km spacing between holes there is scope for a substantial deposit. A 5m composite sample (001025) over the interval 37-42m assayed 44.3% Fe_2O_3 (31.0% Fe); this composite included 2m metres of poorly mineralised material, suggesting the actual Fe mineralisation approaches economic grades.

6.3 Limestone

Assay results confirm geological logging in that significant compositional variation exists in the carbonates intersected in each of the drill-holes. Carbonate compositions appear to vary from very impure sandy (quartz rich) limestones or dolostones through to relatively pure limestones and dolomites. The highest CaO assay returned from the program was 47% CaO and 0.43% MgO; it is unlikely that this would be considered for lime/cement manufacture due to the still significant level of impurities, but it shows that there is potential for low MgO high CaO carbonates. The drilling program should be considered a poor test of the carbonates, as blade refusal was generally due to striking massive hard carbonates; it follows that the most prospective part of the stratigraphy has not been adequately sampled for a full assessment of the potential for lime manufacture, although the depth to basement over most of the area drilled and the remote location makes extraction of carbonate unlikely to be economically feasible.

6.4 Environmental

Drilling was carried out along existing tracks and firebreaks along fence lines. As some of these were quite overgrown local station owners at Tarlee and Avago were offered inducements to accelerate their routine maintenance of fence-lines by grading them. Unfortunately the owner of Avago determined that he did not want drilling carried out on his tracks, and instead bladed off a small area adjacent to his fence-lines, thus causing somewhat more clearing than was envisaged in the Mine Management Plan; however, as soil and roots were largely left intact, these areas will regenerate rapidly.

All drill holes were permanently capped with cement plugs immediately upon the hole being completed. All drill samples were laid directly on the ground, with no plastic bags used for the program. The drill samples consist mainly of sands and clay which will blend into the environment with no detrimental effects. At several hole locations the sample piles had disappeared within a few days of being drilled by agency of cattle trampling.

On a few occasions when drilling equipment was bogged leaving ruts, these were roughly backfilled by the drillers; these will be unnoticeable by the end of the next wet. It is unlikely that they will lead to erosion due to the flat topography.

Pre- and post-drilling photographs of most drill-hole locations were taken as a record of disturbances.

Apart from environmental monitoring, there is no outstanding rehabilitation work to be done.

Table 2. Drilling Statistics by Tenement

	EL28184	EL28185
No of Holes	19*	25
No of Samples	84	103
Metres RC	153	0
Metres Aircore	620.5	1155.8
Metres RAB hammer	27	38
Total Metres	800.5	1193.8

**Hole LAC013 may have inadvertently been collared slightly north of the tenement boundary due to access problems with the proposed hole location.*

7 Conclusions

Drilling at the Larrimah Project has intersected significantly anomalous phosphate mineralization in a stratigraphic setting analogous to known major phosphate deposits in the Georgina Basin. Phosphate mineralization appears to be hosted by a zone of weathered clays, siltstones and cherty silcrete located at the top of the Cambrian carbonate sequence.

This zone may represent both a pre-Cretaceous weathering surface over the Cambrian carbonate stratigraphy and a separate stratigraphically distinctive sequence. Primary phosphate mineralisation may have undergone secondary upgrading as a result of dissolution and re-deposition by weathering processes, possibly controlled by palaeo-topography in the form of a trough like structure. While drilling is too widely spaced to come to any definite conclusions about trends of the mineralization, it appears that anomalism follows a broadly North-South trend roughly centred on the railway line.

Intersections of phosphate mineralisation deepen towards the south, while mineralisation appears absent to the north on EL28184. While no economic grade phosphate intercepts were obtained, the widely spaced grass roots nature of the drilling program means that sufficient potential remains for the discovery of economic phosphate mineralisation on EL28185 and this should be tested by further drilling.

8 Recommendations

1) The area of LAC019-LAC020 should be further evaluated by drilling to determine if the intersections in these holes are marginal to thicker, higher grade mineralization. Infill drilling at 1km spacing along existing tracks and along a new east-west traverse centred on LAC019 (Figure 4) should adequately test this area (note that drilling to the west of LAC019 is likely to be difficult due to the presence of a swamp). This will require approximately 1,050m of drilling in 15 holes to an average depth of 75m. While mineralisation was intersected at 40-53 metres, at the top of the carbonate sequence, it would be prudent to test the sequence to greater depth, both to test for mineralisation and to establish the carbonate stratigraphy to assist in correlating between drill holes. Unconsolidated sands are present in this area from 20-40m; this may require casing the holes down to 40m.

2) The area of LAC030-LAC032 requires some follow-up drilling as in both LAC030 and LAC032 mineralisation was intersected at the bottom of the hole; in the case of LAC030 in apparently Cretaceous cover, while the intermediate LAC033 ended in un-mineralised Cretaceous cover. The depth to mineralisation in this area (60+m) and the proximity to the southern EL boundary make this a less attractive target. Five RC holes to approximately 90m depth (450m) infilling the existing east-west traverse (Figure 4) would be an adequate test; a broader spacing is justified here as a larger target would need to be present given the depths involved. The recent drilling in this area was not hampered by running sands, although sticky clays may still cause problems for RC hammer drilling.

3) It is recommended to sample the zone of interest below the base of the Cretaceous cover in metre intervals rather than as composite samples, primarily to determine if phosphate mineralisation is present as discrete higher grade horizons. It may be useful to add Ni and Cu to elements assayed for; this will assist in more reliably discriminating between clays derived from completely weathered basalt and those forming part of the Cambrian or Cretaceous sedimentary succession.

4) Recommendations on future drilling: The combination of loose running sands alternating with puggy clays provide ground conditions quite unsuitable for RC hammer drilling resulting in bogged rods and frequent blockages. While aircore drilling proved to be more successful, it mostly failed to penetrate far into the Cambrian basement; in part because of blade refusal, but also in part due to the drag on the rods caused by the running sands. The need to inject water to stabilise the unconsolidated sands caused poor sample quality when clays were intersected below or in the sands; this could be critical as the zone of clays directly below the sands may be the main phosphate-bearing unit. For future drilling there are two main options that should be considered. The first is to use a full size RC rig with a blade bit and 6m rods. This is likely to give superior penetration and will perform better in the sands; but will ultimately meet blade refusal as well, although possibly well below the zone of mineralisation. The other possible method is adapting that apparently used by water-bore drillers in the area: drill open-hole to the base of the

Cretaceous using abundant muds to hold back the sands, run casing in the hole and then drill RC hammer to the required depth. The latter option would be quite expensive, and should perhaps only be used in the event potentially economic mineralisation has been discovered.

Any drilling contract let should allow for RC hammer drilling, but with RC blade and larger diameter open-hole drilling with casing as options in the event RC hammer drilling from surface proves unsuccessful. Only rigs with significant pullback force should be considered.

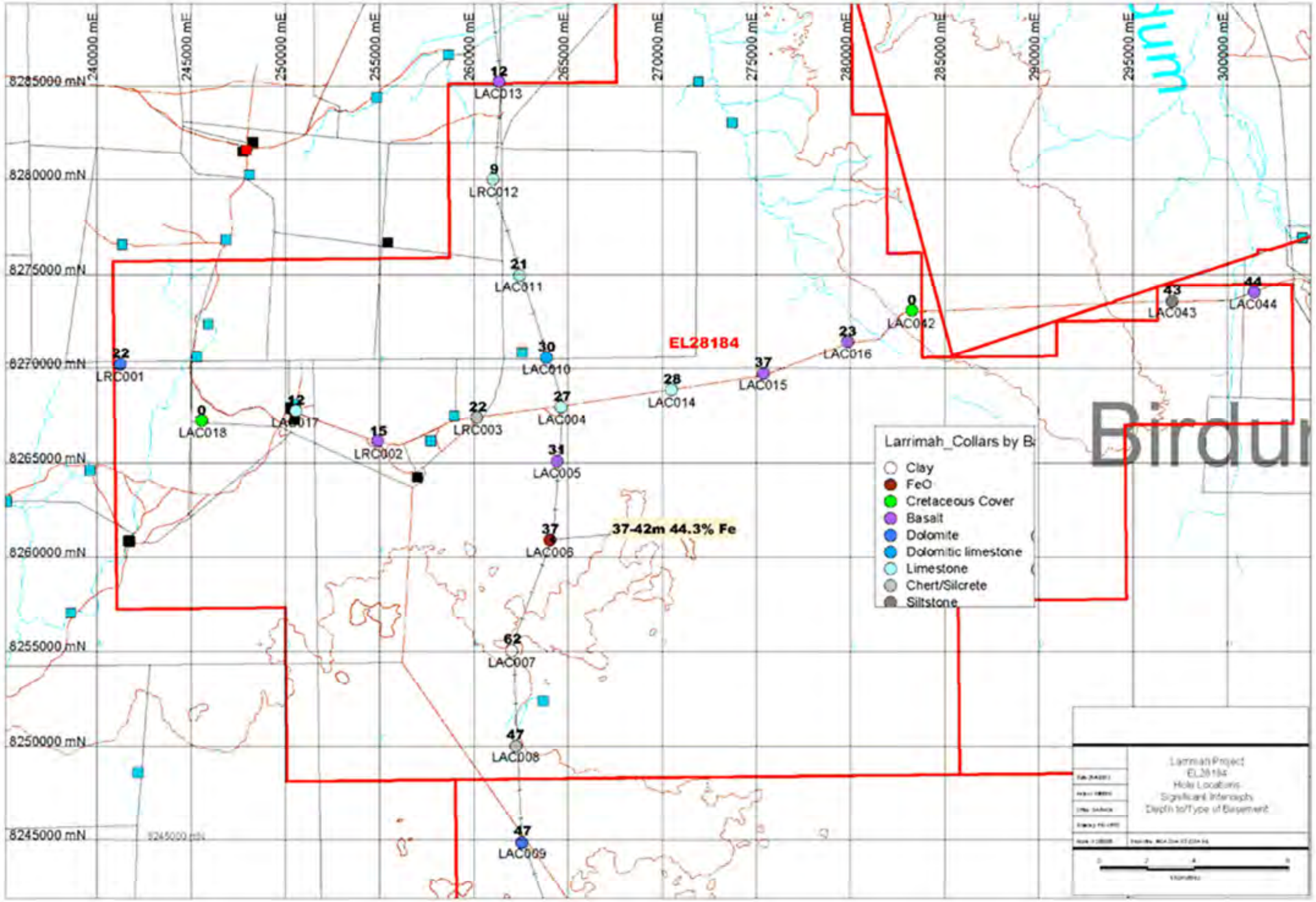

Figure 1. EL28184 Drill hole locations, showing basement lithology and depth to basement (for reference only)

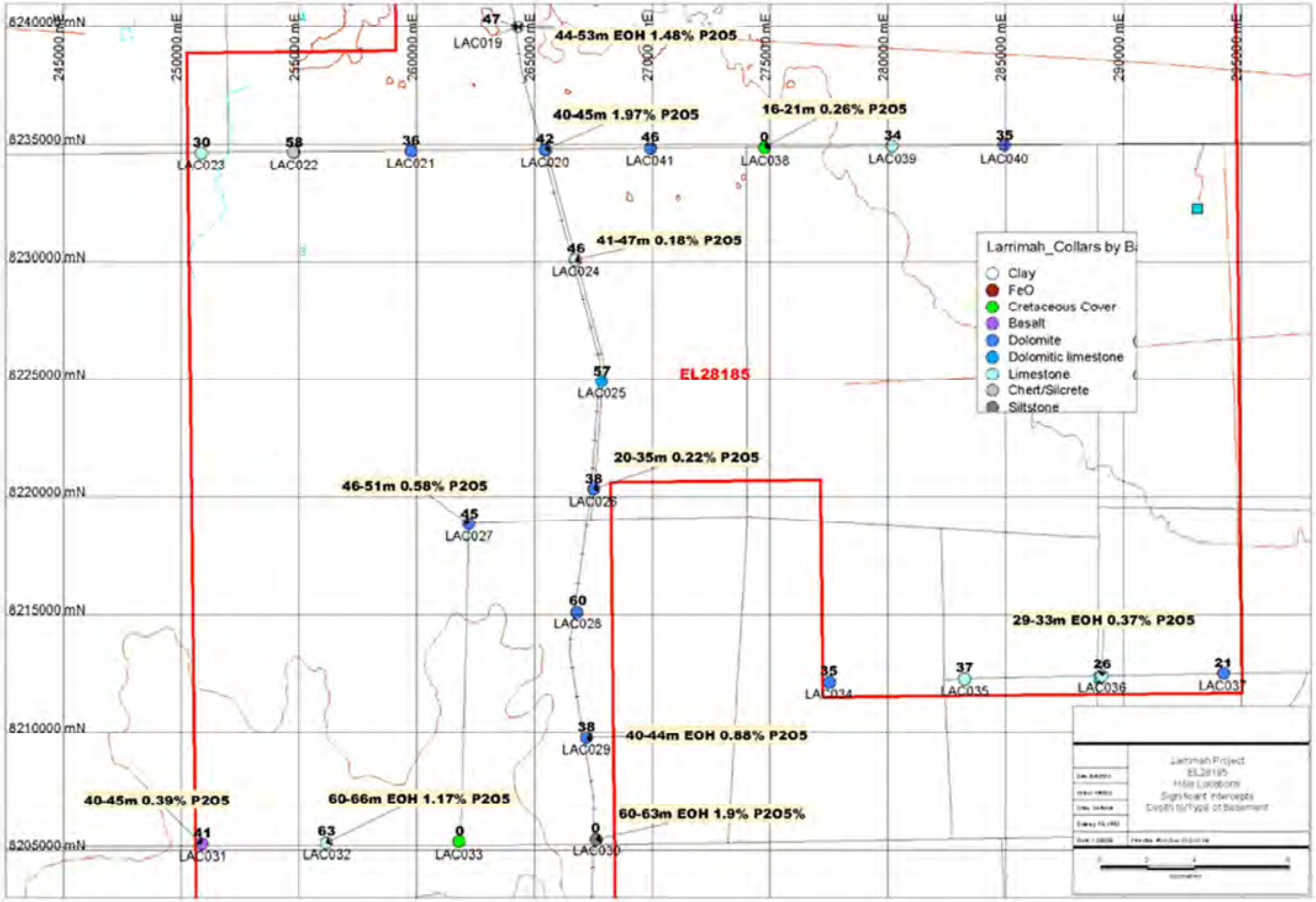

Figure 2. EL28185 Drill hole locations showing basement lithology and depth to basement (for reference only)

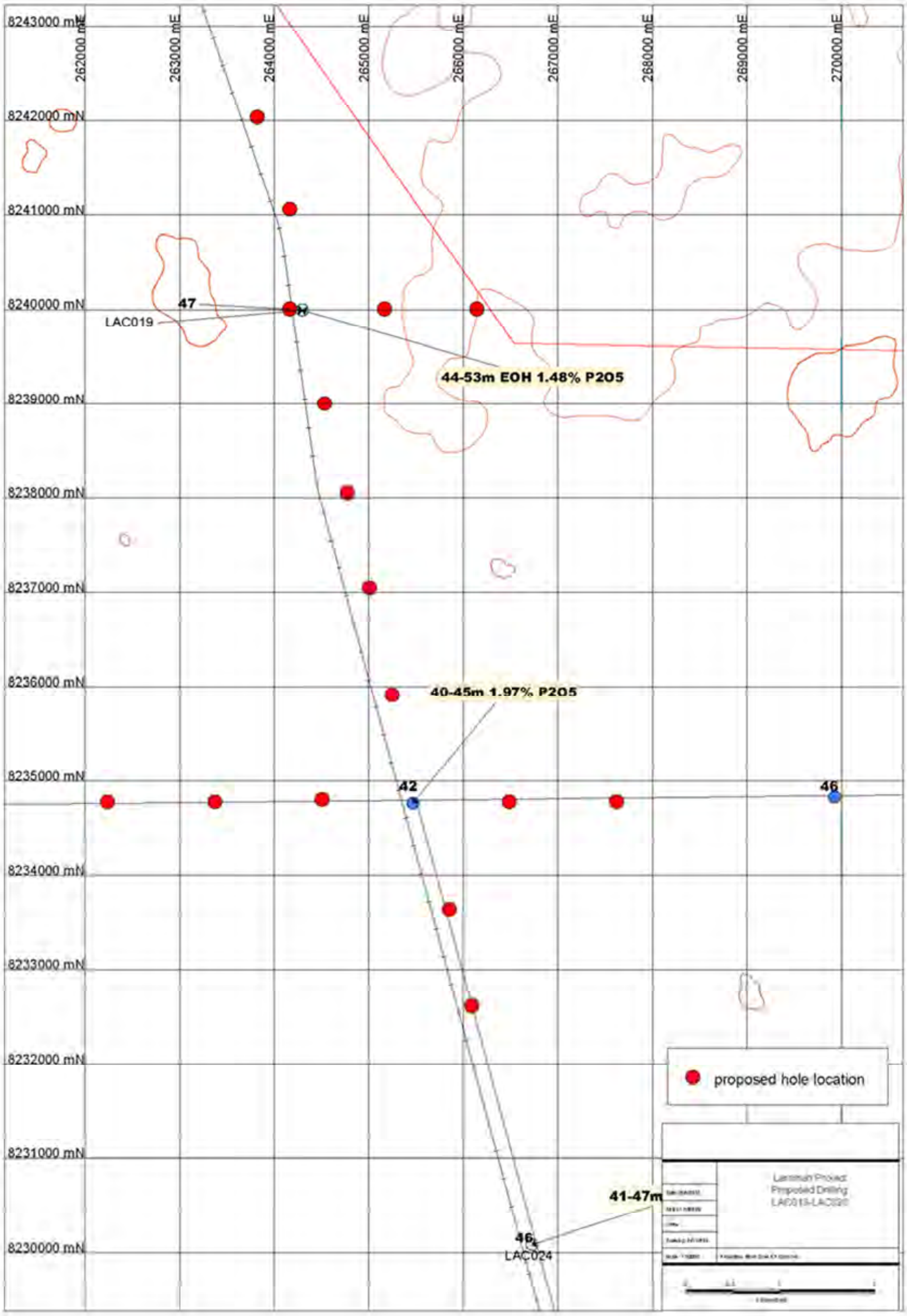

Figure 3. Proposed Drilling LAC019-LAC020

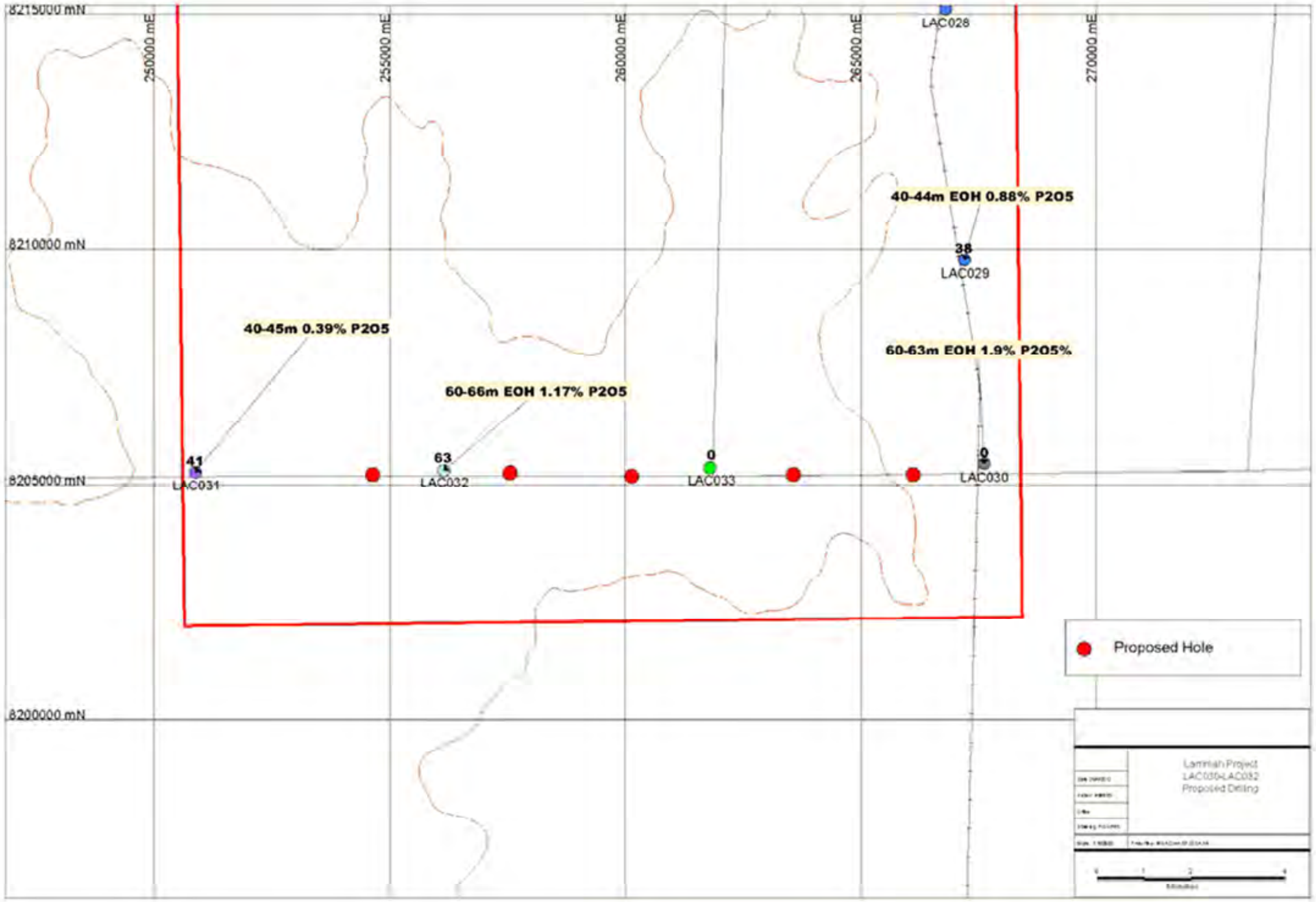

Figure 4. Proposed Drilling LAC030-LAC030

Attachment 1 Assay Results

The results of the assay sampling provided by Amdel are provided in the attachment labelled "Copper Range Larrimah 2012 Drilling Assay Results" with this report.