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RESOURCE ESTIMATION | FEASIBILITY STUDIES | DUE DILIGENCE

RESOURCE SPECIALISTS TO THE MINERALS INDUSTRY

# **Independent Geologist's Report For the Fetch Metals' Properties, NW Queensland**

**Prepared for Fetch Metals Limited**

**by**

**H&S Consultants Pty Ltd**

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**14 October 2022**

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H&S Consultants and Fetch Metals

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# 1 Executive Summary

## *Commissioning of this Report*

The Directors of Fetch Metals Pty Ltd commissioned H&S Consultants Pty Ltd ("H&SC") to prepare an Independent Geologist's Report ("IGR" or "Report") on the exploration and mining properties of Fetch Metals Pty Ltd ("Fetch") in NW Queensland. These are sometimes referred to as the Fetch tenements or the Fetch projects.

This IGR will be used in the Fetch prospectus to list Fetch on the Australian Securities Exchange ("ASX") in 2022 ("**Prospectus**"). Mr Simon Tear, who is a duly authorised representative and director of H&SC, has supervised the preparation of the Report.

H&SC has not been requested to provide an Independent Valuation and thus this report does not express an opinion regarding the value of mineral assets or tenements involved.

H&SC and Fetch have outlined the terms of engagement via a Commissioning Letter and a Scope of Work/Proposal that was agreed upon prior to the commencement of the IGR. The cost of the report, including a site visit, is approximately \$40,000.

## *Location and Tenement*

The exploration projects of Fetch are situated in NW Queensland and are principally for base metals and gold. The regions in which the Fetch tenements are situated are established mineralised environments.

Fetch controls 17 granted Exploration Permits for Minerals ("EPMs"), for a total of 374 sub blocks and about 1,197 km<sup>2</sup>. Fetch also controls interest in two MDL's 204 and 205 and ten ML's, for a total of 7,474 hectares.

Fetch has one major project area, White Range, in its portfolio with two subordinate projects, all located 15-130km south and southeast of Cloncurry in NW Queensland:

1. The White Range Project, located 15 to 70km south of Cloncurry,
2. The Sandy Creek Project, located 100km to 130km south of Cloncurry,
3. The Levuka South Project, located 75km southeast of Cloncurry,

A fourth project, the Tombola Project, 15km southeast of Cloncurry, consists of Fetch currently holding an 11% interest in the tenements with Tombola Gold, who are the operator of the project. Fetch has not allocated any expenditure to that Project nor does Fetch have any input into the exploration and mining programs underway.

## *Project Geology & Mineralisation styles*

The Fetch projects lie within the Eastern Fold Belt of the Proterozoic Mt Isa Inlier, which comprises variably Early to Mid Proterozoic metasediments, metavolcanics and intrusives. The belt hosts significant deposits such as Ernest Henry (Cu/Au), Osborne (Cu/Au) and Cannington (Ag/Pb/Zn) and other smaller deposits such as Selwyn/Starra, Mt Dore and Eloise.



The Cloncurry region is well endowed with mines and advanced projects containing significant copper, gold, silver, lead and zinc mineralisation. The majority of the copper deposits come under three general categories:

1. Structurally Controlled Copper (“SCC”) e.g. Mt Dore, Rocklands
2. Iron Oxide Copper Gold (“IOCG”) e.g. Ernest Henry, Selwyn
3. Iron Sulphide Copper Gold (“ISCG”) e.g. Osborne, Eloise

Primary copper mineralisation is in the form of chalcopyrite and chalcocite. However in several of these deposits and particularly the Fetch deposits, there is a substantial oxidation zone, 10s to 100s of metres thick, which has resulted in the generation of secondary copper sulphides e.g. chalcocite/covellite and copper oxides e.g. malachite and chrysocolla.

The dominant mineral style for the Fetch projects is low to moderate grade structurally-controlled copper, typical of the Eastern Fold Belt of the Mt Isa Inlier.

The basic mode of formation of the style of mineral deposit to be found on the Fetch tenements involves the generation and transportation of hydrothermal mineral fluids, often copper (and gold)-rich from depth, in this case resulting from the intrusion of granite batholiths. The interaction of these fluids with the combination of a specific structural array and lithological unit may result in the formation of a mineral deposit that might be termed as a structurally-controlled stratabound type. A particular target stratigraphy for the Fetch tenements is the contact between the Answer Slate (formerly the Marimo Slate) and the Stavelly Formation.

### ***Previous Exploration***

Fetch has collated and maintained an exploration database that includes data from government surveys and work programs undertaken by previous explorers. This includes a sampling database for all the tenements which comprises a total of 2,803 drill holes for 149,971m drilled along with a total of 168,599 soil samples, 9,115 stream sediment samples, and 8,247 rock chip samples. There has also been a significant amount of ground and airborne geophysical surveys conducted as well as remote sensing analysis utilising satellite imagery.

### ***Mineral Resources***

A series of 8 copper Mineral Resources have been reported for the White Range Project. Of the Mineral Resources reported, 7 have been in accordance with the 2012 JORC Code & Guidelines, the 8th one has been reported in accordance with 2004 JORC Code & Guidelines.

The combined Mineral Resources have been classified by previous workers as Measured, Indicated and Inferred using a 0.2% copper cut-off.

#### **White Range Copper Project Combined Mineral Resources**

Category	Mt	Copper %	Cu Kt
Measured	6.4	0.87	55.2
Indicated	17.1	0.76	130.0
Inferred	16.2	0.59	94.76
<b>Total MRE</b>	<b>39.7</b>	<b>0.71</b>	<b>280.1</b>

***Project Summaries***

The White Range Copper Project comprises a collection of almost contiguous EPMs that includes a series of 8 Mineral Resources. These deposits are Greenmount, Kuridala, Young Australian, Mt McCabe, Vulcan, Desolation, Florence Bore North and Florence Bore South. The main commodity is copper but with some subordinate gold and cobalt. Some of the deposits have had small scale mining, underground or open pit in the past but it is Fetch's immediate intention to extract the oxide portion of the Mineral Resources via an open pit scenario and develop a series of heap leach operations.

Fetch views the White Range Copper Project as both a "brownfields" exploration opportunity around the known deposits and a "greenfields" opportunity for the identification of additional deposits within the EPM package. Fetch has identified in excess of 65km of prospective strike length of the contact between the Answer Slate and Staveley Formation within the tenement holding. This contact is regarded as the primary locus for known SCC mineralisation in the area. Historical drilling has indicated significant copper intercepts of a similar style to the known deposits at Tank Hill, Copper Canyon, Black Fort, Toby Barty and within the Florence Bore EPMs. The area has had extensive historical exploration with many potential targets undertested.

The Sandy Creek Copper Project is a small collection of EPMs (as two discrete packages) approximately 50km south of White Range with a similar target deposit type as for White Range. The level of historic exploration work is much less than White Range.

The Levuka South Copper Project comprises two semi-contiguous EPMs 75km southeast of Cloncurry. The target deposit style is more akin to other deposits within the Levuka north-south corridor than the White Range style of copper deposits. These styles include structurally controlled pyrrhotite-dominant copper and gold systems e.g., Eloise, and other variants of an Iron Oxide Copper Gold character. In addition, the Soldiers Cap sediments within the EPMs can host Broken Hill-type mineral systems e.g., the Ag-Pb-Zn Cannington deposit, located further south. Past exploration has been hampered by significant Phanerozoic cover.

The Tombola Project located 12-40km southeast of Cloncurry, is comprised of 4 semi-contiguous EPMs and a collection of granted mining leases focussed on the Gilded Rose and Mount Freda mining operations. Fetch currently holds an 11% interest in the tenements with Tombola Gold, who is the operator of the project. Fetch has not allocated any expenditure to that Project nor does Fetch have any input into the exploration and mining programs underway.

Greenfields exploration will primarily focus on testing known structural and stratigraphic combinations associated elsewhere with known mineralisation, possibly sub-cropping or even exposed. It will also involve locating alteration haloes, on surface or otherwise, associated with possible blind orebodies.

***Programmes & Budgets***

Fetch has a satisfactory and clearly defined exploration and expenditure program, which is reasonable having regard to its stated objectives. Allowance has been made for successful first-year programmes and appropriate expenditures for follow-up activity in the second year.

The exploration strategy is twofold. First, the brownfields exploration will involve significant drilling of both Reverse Circulation (“RC”) and diamond drilling (“DD”) to upgrade and/or extend the known Mineral Resources within the White Range Project area e.g., Greenmount, Mt McCabe etc. This may also include selective drilling of already known prospects with significant drill intersections from previous drilling e.g. Copper Canyon. This work may also involve downhole geophysics to test for areas of sulphide mineralisation either at depth or further along strike.

Secondly, the greenfields exploration will initially involve a compilation of the extensive historic geoscientific data into a GIS database suitable for the definition of prospective zones for base metals and gold within all the licence areas. Ranking of the prospective zones in accordance with a suite of exploration parameters associated with a range of exploration models will allow for follow up ground-based exploration work and the delineation of drill targets. This field work will include mapping, ground-based magnetics and some limited geochemical surface sampling given the already relatively extensive surface coverage of the identified main mineral trends.

Over the next two years Fetch proposes to undertake immediate resource and exploration drilling across the Fetch projects, drilling a series of RC and DD drilling with an estimated meterage of between 10,000 to 25,000 metres of RC and up to 5,000 metres of DD depending on funds raised. The majority of this will be on the White Range Project.

At the Sandy Creek Project the Company intends to undertake geological reconnaissance mapping and surface geochemical sampling with follow up ground geophysics if warranted. If successful, this work will generate targets for possible drilling.

At the Levuka South Project the Company intends to undertake geological reconnaissance and surface geochemical sampling with follow up ground geophysics e.g. ground EM, ground magnetics. If successful, this work will lead to the generation of targets for possible drill testing.

The Tombola Project is an equity holding by Fetch only. Tombola Gold are the operators, and at this stage no funds are being committed by Fetch for exploration nor does Fetch have any input into the exploration activities.

Full details of Programmes & Budgets are presented in the Company and Projects Overview (Section 5) within the Prospectus, but a summary is included below:

#### Proposed Exploration Budgets

Project	Proposed Expenditure (\$)	Exploration	Proposed Drilling	
			RC	DD
White Range	\$5,921,000	Geological recon and geophysics	16,000m	10,000m
Sandy Creek	\$145,000	Geological recon and geophysics	600m	
Levuka South	\$175,000	Geological recon and geophysics	600m	
<b>Totals</b>	<b>\$6,240,000</b>		<b>27,200m</b>	

Even though encouraging intersections and some continuity of mineralised zones is established, at the White Range deposits in particular, the proposed programs carry the fundamental risks for mineral exploration activity (see Section 5 Projects Overview of the Prospectus). However, in view of this, H&SC still consider the programmes are fully justified.

### *Comments & Conclusions*

The status of the tenement, Native Title and landholder agreements appear to be in good order.

Fetch's collating and summarising of historical exploration data (geophysics, surface sampling and drilling) has been done to an industry standard level and their geological team have successfully used this data to define the extent and understanding of the geology and mineral deposits.

Fetch's interpreted geological models are based on various data sources and work including airborne and ground geophysics, diamond core drilling and by comparison with the published geology of similar deposit types nearby.

H&SC concludes that the exploration methodology and drilling carried out to date has been appropriate given the exploration stage of the projects, was at industry standard for the time, and allowed the development of Mineral Resources.

Comparison of some of the current Mineral Resources with H&SC's predecessor Hellman & Schofield's work completed in 2004 indicates some variation in quantity and grade of some of the mineral bodies that will require further review. However, H&SC considers the current Mineral Resources to be reasonable.

The Mineral Resources are primarily in the oxide zone and proposed mined material will be treated via a heap leaching operation.

It should be noted that exploration is a high-risk venture. The White Range Project is in the later stages of (brownfields) exploration and requires more drilling of the various prospects with Mineral Resources, to validate the earlier drilling.

Potential risks to the Mineral Resources for the White Range Project may include:

- Use of historical holes in the Mineral Resources that are not able to be validated (no QAQC, no records, no recent twinned holes)
- Possible overstatement of copper assays with the drilling method for some of the deposits
- Resource estimation methodology: use of 0.2% Cu grade mineral wireframes and median Indicator Kriging for metal grade interpolation might lead to some overstatement of the Mineral Resources
- A lack of density data and potential for dry bulk density variations

The other three projects are at a more greenfields stage of exploration and hence are higher risk.

It should be noted that H&SC makes no other assessment to potential liabilities and risks that relate to, but not limited to, legal, financial, company, or general exploration success. For

other potential liabilities and risks the reader is directed to refer to the Investment Overview and Independent Solicitor's report elsewhere in the main Prospectus.

H&SC conclude that the inputs, assumptions, approaches, and methods put forward by Fetch for exploration on the project thus far are fair and reasonable.

The views and conclusions expressed in this IGR are solely those of H&SC and Mr S. Tear. Generally, these views concur with the views of Fetch Metals and there are no material differences.

## 2 Introduction

### 2.1 Terms of Reference

The Directors of Fetch Metals Pty Limited commissioned H&S Consultants Pty Ltd ("H&SC") to prepare an Independent Geologist's Report ("IGR" or "Report") on the exploration and mining properties of Fetch Metals Pty Limited ("Fetch") in NW Queensland. These are sometimes referred to as the Fetch tenements or the Fetch projects. This IGR will be used in the Fetch Prospectus for the proposed listing of Fetch on the Australian Securities Exchange ("ASX") in 2022.

In preparing this Technical Assessment Report, H&SC has complied with sections 12.1, 12.2, 12.3 & 12.4 of the VALMIN Code (2015) and the relevant requirements of the Section 5 of the VALMIN Code (2015). Mineral Resources and Exploration Targets have been reported in accordance with the 2012 JORC Code & Guidelines.

H&SC has not been requested to provide an Independent Valuation or detailed Risk Assessment. This report does not express an opinion regarding the value of mineral assets or tenements involved.

H&SC has provided its consent for the inclusion of this report as a Competent Person's Report in Annexure A of the Prospectus and for the inclusion of references to its name in other sections of the Prospectus in the form and context in which the report and those statements appear, and has not withdrawn that consent prior to issue. H&SC accepts responsibility for the Competent Person's Report for the purposes of the ASX listing. H&SC has taken all reasonable care to ensure that the information contained in this report is to the best of its knowledge in accordance with the facts and contains no omission likely to affect its import.

The purpose and scope of this report is to assess the technical information contained in the Prospectus, to independently review the sources of information and to make relevant comments on the integrity of that information and the Fetch work proposals contained therein.

### 2.2 Statement of Capability

Mr Simon Tear, who is a duly authorised representative and director of H&SC, has supervised the preparation of the Report. Mr Tear has had over 39 years' experience in the minerals industry, is a Professional Geologist (PGEO) with the Institute of Geologists of Ireland, a Professional Member of the European Federation of Geologists (EurGeol) and is a Member of

the Australasian Institute of Mining and Metallurgy (MAusIMM). He specialises in Mineral Resource estimation, advanced project assessment and exploration management.

Mr Tear is experienced in exploration in NW Queensland and assessment of Mineral Resources and has knowledge of the geology and general exploration in the regions where the Fetch properties are located. Mr Tear completed an assessment of the White Range resource estimates in 2021. He completed a site visit to the project areas in August 2022 during which Mr Tear was supplied exploration information by Fetch, for all the properties, which warrants that the supplied information is accurate and complete.

H&SC affirms that Mr S. Tear is both a Member of the Australasian Institute of Mining and Metallurgy and a Professional Member of the Institute of Geologists of Ireland, with a minimum of five years' experience in the estimation, assessment and evaluation of mineral resources that is relevant to the styles of mineralisation and the types of deposits under consideration.

Mr S. Tear observes Section 947B of the Corporations Act 2001. Neither Mr S. Tear nor H&SC are financial services licensees, operating under an Australian financial services license and the advice in the independent report is an opinion on matters other than financial products and does not include advice on a financial product.

## **2.3 Sources of Information**

A substantial amount of regional geoscientific data is available through Queensland Government websites. This includes regional scale mapped geology, surface geochemical sampling (stream sediment, soil and rock chip samples), drillhole information including collar details, mineral occurrence locations and various airborne geophysical datasets.

Previous owners of the White Range properties, Queensland Mining Corporation (QMC), have completed a substantial compilation of exploration data in a digital format which has been supplemented by government supplied data. In addition to this, data used for the resource estimations completed by QMC, including wireframes and block models were also supplied along with accompanying reports.

An appraisal of information supplied by the client, Fetch, forms the basis of this Report. Substantial references have been made to earlier resource estimate reports completed by independent consultants, Golder Associates (2004-2017) and Hellman & Schofield (2004).

Previous geological reports are publicly available from an open-file register, or website of the Queensland Government Department of Mines, or an open register or website of the ASX or publications in the public domain. All references to previous geological sources of information fairly represent the contents of the previous geological reports. Reports and publications attributed to organisations and persons are referenced only to support the technical (scientific) aspects within the IGR and are not used for promotional reasons. Consent for the use of any public domain information has not been sought.

Mr. Tear has at his own discretion relied on the observations and interpretations of previous explorers, exploration consultants and Fetch geological staff. Independent checking at other organisations which may have been previously involved in exploration and mining activities in the area of the Fetch tenements was not carried out. Fetch has indemnified both Mr. Tear and H&SC for liability arising from reliance on information provided or from available



information not provided and for any further activities relating to enquiries from the Australian Securities Exchange and the Australian Securities and Investment Commission ("ASIC") with regard to the Report.

The views and conclusions expressed in this IGR are solely those of H&SC and Mr S Tear. Generally, these views concur with the views of Fetch and there are no material differences.

All references to Mineral Resources are consistent with the most recent Australasian Code (and Guidelines to the Code) for Reporting of Identified Mineral Resources and Ore Reserves: Reports prepared by the Joint Committee of The Australasian Institute of Mining and Metallurgy, the Australian Institute of Geoscientists and the Minerals Council of Australia (JORC 2012).

A 3 day site visit was completed by Mr. Tear, a director of H&SC, for the Fetch properties. The visit included field inspections of all the major deposits. It also included an inspection of an unsampled PQ metallurgical drillhole for Greenmount and selected sections of core from Mt McCabe. Also viewed were a selection of chip trays for the RC drilling from the six main deposits. The geological inspection confirmed the nature of the mineralisation and the host rocks along with copper assays from the drilling.

### 3 Tenements

The exploration projects of Fetch are situated in the Eastern Proterozoic Belts of the Mt Isa Inlier in NW Queensland and are principally for base and precious metals.

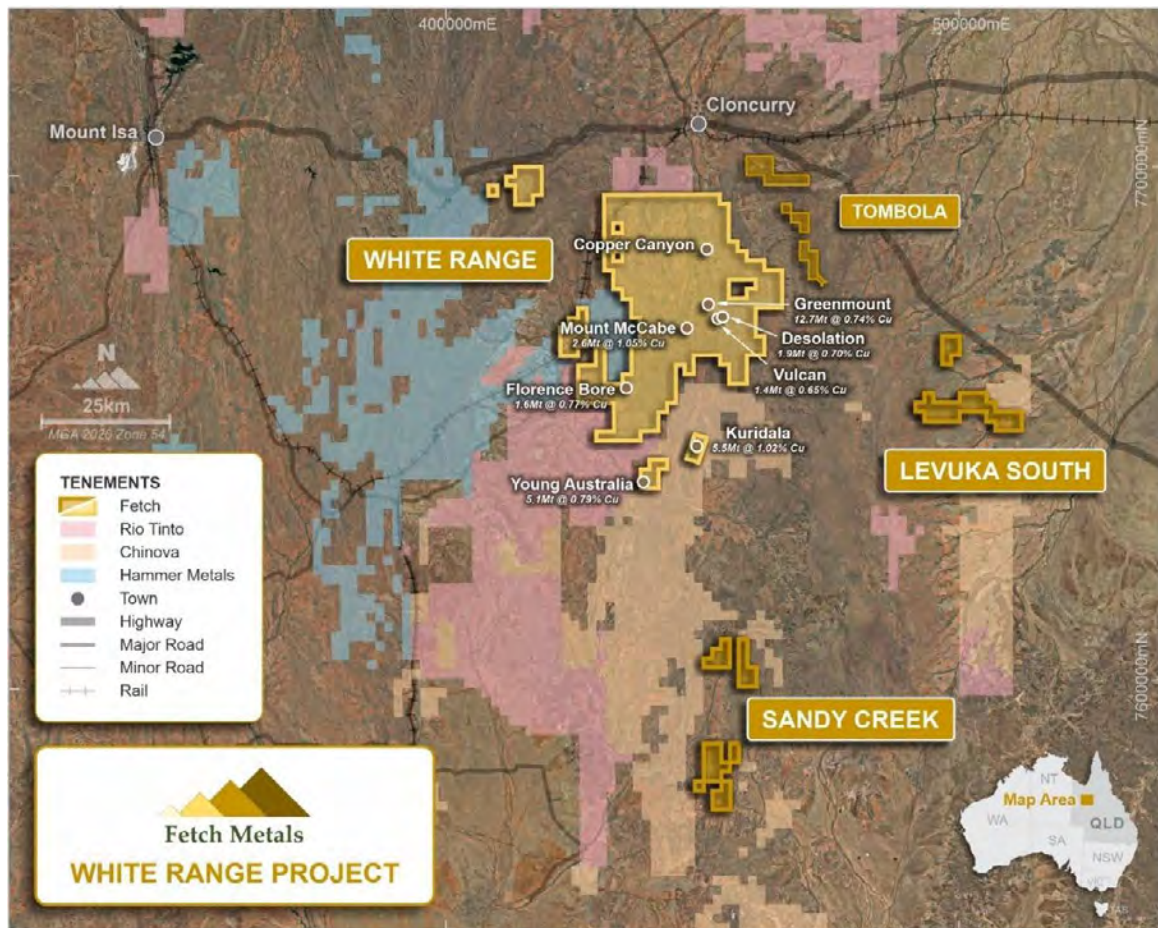
Fetch's tenement portfolio includes 17 granted Exploration Permit for Minerals ("EPMs") for a total of 374 sub blocks and about 1,197km<sup>2</sup>. In addition, 6 sub-blocks from EPM 17602 for a further 19.2 km<sup>2</sup> are part of a Joint Venture with Chinova Resources. Fetch Metals has an option to require Chinova Resources to apply for a mining lease over all or any part of these six sub-blocks for Fetch within the timeframe of the agreement. Additionally, Fetch Metals controls two Mining Development Leases ("MDL's") and ten Mining Leases – Minerals ("ML's") for a further 73.4 km<sup>2</sup>.

The Fetch tenement holding is extensive and is thus divided into four distinct project areas:

1. White Range Project,
2. Sandy Creek Project,
3. Levuka South Project
4. Tombola Project.

Fetch is the operator and holds a controlling stake in the first 3 project areas, however, Fetch currently holds an 11% stake in the Tombola Project but is not the operator.

Figure 1 shows the location of the Fetch tenements.



**Figure 1: Fetch Tenements and Mineral Projects**

The EPM tenement details are listed in Table 1 and the ML/MDL tenement details are listed in Table 2.

Statutory levels of expenditure necessary to ensure that the tenements are maintained in good standing and other information can be found in the tenement information provided in the Prospectus. All the tenements are for “all minerals” except coal.



**Table 1: Fetch Tenements in NW Queensland**

<b>White Range</b>							
<b>Tenure ID</b>	<b>Tenement Name</b>	<b>Status</b>	<b>Date Lodged</b>	<b>Date Granted</b>	<b>Date Expires</b>	<b>Principal Holder</b>	<b>Sub Blocks</b>
EPM 15285	Florence Creek	Renewal Lodged	28/10/2005	30/10/2007	29/10/2022	FETCH METALS LTD	43
EPM 18511	Brightlands	Granted	1/02/2010	30/04/2012	29/04/2027	FETCH METALS LTD	11
EPM 18053	Bulonga	Granted	1/04/2009	27/04/2012	26/04/2027	FETCH METALS LTD	13
EPM 18852	Robur	Renewal Lodged	1/09/2010	10/08/2012	9/08/2022	FETCH METALS LTD	20
EPM 26372	Marimo	Granted	18/10/2016	29/01/2018	28/01/2024	MT MCNAMARA PTY LIMITED	104
EPM 14148	White Range #1	Granted	8/07/2003	29/10/2004	18/10/2024	SIERRA LINE PTY LTD	32
EPM 15897	White Range Consolidated	Renewal Lodged	15/09/2006	23/10/2008	22/10/2021	SIERRA LINE PTY LTD	19
EPM 25849	Copper Canyon East	Granted	16/12/2014	27/07/2015	26/07/2025	SIERRA LINE PTY LTD	24
EPM 17602	Top Camp	Granted	8/05/2008	21/10/2010	20/10/2023	IRON RIDGE - BLACK FORT PTY LTD	47
EPM 18440	Slaty Creek	Renewal Lodged	3/12/2009	29/11/2011	28/11/2022	QUEENSLAND MINING CORPORATION PTY LTD	3
EPM 26131	Florence Creek	Renewal Lodged	12/01/2016	27/10/2016	26/10/2021	QUEENSLAND MINING CORPORATION PTY LTD	19
EPM 18912	SUBSET of EPM for JV	Granted	5/10/2010	20/06/2012	19/06/2027	CHINOVA RESOURCES CLONCURRY MINES PTY LTD	127
<b>Sandy Creek</b>							
<b>Tenure ID</b>	<b>Tenement Name</b>	<b>Status</b>	<b>Date Lodged</b>	<b>Date Granted</b>	<b>Date Expires</b>	<b>Principal Holder</b>	<b>Sub Blocks</b>
EPM 18073	Selwyn East	Granted	23/04/2009	19/09/2011	18/09/2023	FETCH METALS LTD	18
EPM 25192	Concorde	Granted	1/03/2013	16/12/2014	15/12/2026	FETCH METALS LTD	6
EPM 25455	North Camel Dam	Granted	2/12/2013	1/05/2015	30/04/2027	FETCH METALS LTD	2
EPM 25454	Heathrow East	Granted	2/12/2013	24/12/2014	23/12/2026	FETCH METALS LTD	4
<b>Levuka South</b>							
<b>Tenure ID</b>	<b>Tenement Name</b>	<b>Status</b>	<b>Date Lodged</b>	<b>Date Granted</b>	<b>Date Expires</b>	<b>Principal Holder</b>	<b>Sub Blocks</b>
EPM 26011	Strathfield	Granted	3/08/2015	8/02/2016	7/02/2026	QUEENSLAND MINING CORPORATION PTY LTD	24

EPM 18663	Gold Reef Dam	Renewal Lodged	4/05/2010	23/01/2012	22/01/2022	QUEENSLAND MINING CORPORATION PTY LTD	5
<b>Tombola</b>							
<b>Tenure ID</b>	<b>Tenement Name</b>	<b>Status</b>	<b>Date Lodged</b>	<b>Date Granted</b>	<b>Date Expires</b>	<b>Principal Holder</b>	<b>Sub Blocks</b>
EPM 14475	White Range #4	Granted	2/01/2004	27/06/2005	26/06/2025	SPINIFEX MINES PTY LTD	11
EPM 14163	White Range #2	Granted	15/07/2003	19/10/2004	18/10/2022	QMC EXPLORATION PTY LIMITED	5
EPM 18286	Elder Creek	Renewal Lodged	11/09/2009	14/01/2013	13/01/2022	QMC EXPLORATION PTY LIMITED	3
EPM 15858	Sunny Mount	Granted	31/08/2006	23/10/2008	22/10/2026	QMC EXPLORATION PTY LIMITED	5

(supplied by Fetch)

Note that the granted tenements allow Fetch to carry out many of their planned drilling programs in accordance with relevant access procedures applying to each tenement.

All the EPMs are subject to the Native Title Protection Conditions with respect to Native Title.

Declared Irrigation Areas, Declared Catchment Areas, Declared Drainage Areas, fossicking areas and State Forest, are all land classifications that restrict exploration activity. These are not affecting Fetch's main prospects but will have an impact on regional programs.

**Table 2: Fetch ML/MDL Tenements in NW Queensland**

White Range							
Tenement number	Tenement name	Current % of interest	Holders	Date of Grant	Expiry Date	Status	Current Area
MDL 204	Copper Canyon	100%	White Range Mines Pty Ltd	8/11/1996	30/11/2021	renewal lodged	1,920
MDL 205	Greenmount	100%	White Range Mines Pty Ltd	8/11/1996	30/11/2021	renewal lodged	2,627
ML 2519	Vulcan	100%	White Range Mines Pty Ltd	22/11/1973	30/11/2026	granted	4
ML 7511	Young Australian 2	100%	NORTH QUEENSLAND MINES PTY LTD	5/12/1991	30/10/2021	renewal lodged	3
ML 7512	Young Australian 1	100%	NORTH QUEENSLAND MINES PTY LTD	5/12/1991	30/10/2021	renewal lodged	2
ML 90081	Kuridala	100%	White Range Mines Pty Ltd	22/08/1996	31/08/2026	granted	1,247
ML 90082	Mt McCabe	100%	White Range Mines Pty Ltd	23/05/1996	31/05/2026	granted	273
ML 90084	Young Australian Ext	100%	NORTH QUEENSLAND MINES PTY LTD	4/04/1996	30/04/2027	granted	5

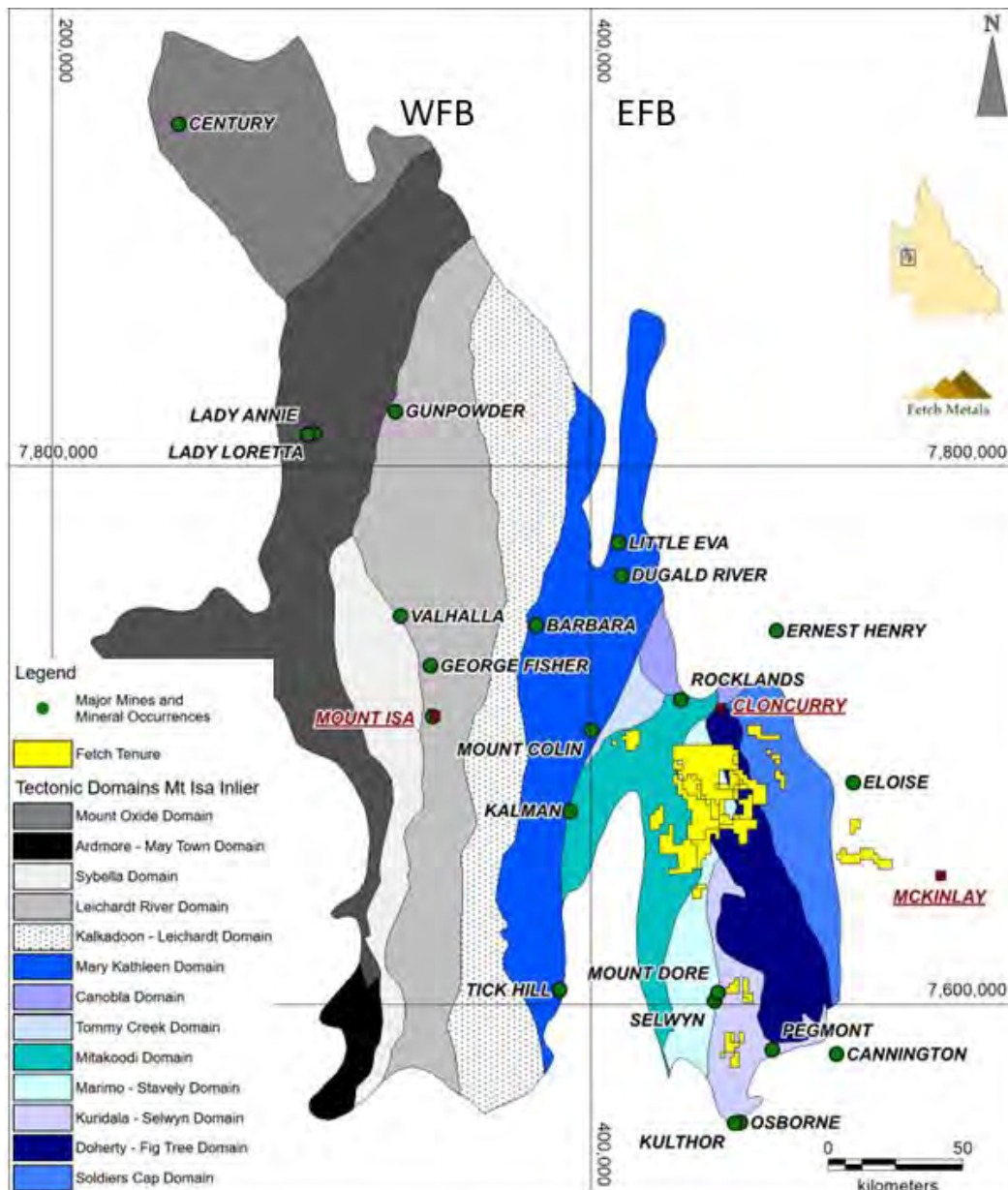
ML 90099	Australian	100%	NORTH QUEENSLAND MINES PTY LTD	30/05/1996	31/05/2026	granted	5
ML 90134	Greenmount	100%	White Range Mines Pty Ltd	10/06/2004	30/06/2029	granted	1,207
ML 90149	Mt McNamara	100%	NORTH QUEENSLAND MINES PTY LTD	15/06/2006	30/06/2026	granted	10
ML 90161	Phil's Find	100%	White Range Mines Pty Ltd	1/10/2012	30/09/2022	granted	171

Current Area (sub-block or ha)

<b>Tombola</b>							
<b>Tenement number</b>	<b>Tenement name</b>	<b>Current % of interest</b>	<b>Holders</b>	<b>Date of Grant</b>	<b>Expiry Date</b>	<b>Status</b>	<b>Area Sqkm</b>
ML2709	Gilded Rose	11%	Spinifex Mines Pty Ltd	21/01/1982	31/01/2024	granted	0.0203
ML2718	Gilded Rose Ext West	11%	Spinifex Mines Pty Ltd	20/09/1984	30/09/2026	granted	0.1417
ML2713	Gilded Rose Ext East	11%	Spinifex Mines Pty Ltd	21/01/1982	31/01/2024	granted	0.1821
ML2719	Gilt Edge Ext	11%	Spinifex Mines Pty Ltd	29/03/1984	31/03/2026	granted	0.32
ML2741	Mt Freda	11%	Spinifex Mines Pty Ltd	11/12/1984	31/05/2028	granted	0.038
ML2752	Mt Freda Ext	11%	Spinifex Mines Pty Ltd	23/02/1989	28/02/2028	granted	1.17
ML2742	Evening Star	11%	Spinifex Mines Pty Ltd	29/05/1986	31/05/2028	granted	0.08
ML2763	Evening Star North	11%	Spinifex Mines Pty Ltd	8/06/1989	30/06/2028	granted	0.08
ML2750	Evening Star North Ext	11%	Spinifex Mines Pty Ltd	26/01/1989	31/01/2028	granted	0.05

## 4 Regional Geology & Mineralisation

The Fetch properties lie within the Proterozoic aged Mt Isa Inlier in NW Queensland. The Inlier is divided into an Eastern Fold Belt (“EFB”) and a Western Fold Belt (“WFB”) that both abut a central Kalkadoon-Leichardt basement craton. The EFB is subdivided into 8 structural domains, 5 of which are relevant to the Fetch tenements. These are, from west to east, the Mitakoodi Domain, the Marimo-Stavely Domain, the Kuridala-Selwyn Domain, the Doherty-Fig Tree Domain and the Soldiers Cap Domain (Figure 2)



**Figure 2: Mt Isa Inlier Tectonic Domains and Major Deposits**

The EFB comprises strongly deformed metasediments and metavolcanics (greenschist to amphibolite facies) that act as host to substantial Early to Mid Proterozoic granitic and mafic intrusions. The belt hosts significant deposits such as Ernest Henry (Cu/Au), Osborne (Cu/Au) and Cannington (Ag/Pb/Zn) and other smaller deposits such as Selwyn/Starra, Rocklands and Mt Dore.

The Inlier succession is unconformably overlain by flat-lying cover rocks of the Cambro-Ordovician Burke River Structural Belt and Mesozoic Eromanga Basins.

The Mt Isa Inlier has undergone a complex history of deformation and metamorphism, which has been widely debated and is poorly understood in parts. The earliest known tectonism to affect the EFB was the Wonga event, occurring between 1750-1735 Ma (Holcombe et al., 1991; Pearson et al., 1992). This was accompanied by the intrusion of numerous granite plutons into the Mary Kathleen, Kuridala-Selwyn and Soldiers Cap Domains.

The Isan Orogeny began at ca. 1600Ma and involved several deformation events, producing varying degrees of metamorphism. Three major ductile deformation events were described by Bell (1983, 1999), named D1, D2, and D3 (the latest), based on work in the Western Fold Belt (“WFB”).

- D1 was interpreted to have produced E-W oriented folds and thrusts
- D2 produced N-S folds and steeply dipping regional foliation
- D3 deformation event resulted in folds and crenulations striking mainly NNW. Numerous workers have argued for and against this sequence, and proposed several variations, mostly involving additional deformation events.

Rubenach et al. (2008) proposed a similar sequence of events for the EFB, based on work completed mostly in the Cloncurry-Selwyn Zone:

- The earliest recognised foliation is sub-parallel with the bedding and was interpreted to be mainly extensional, with the event being named Dbp.
- D1 was the first major compressional event in the area and is known as the Isan Orogeny. It produced very tight to isoclinal, overturned folds of crustal scale and the penetrative S1 fabric (schistosity) is almost everywhere parallel to the original S0 (bedding) layering. It produced the E-W folds with steep axial planes.
- D2 produced upright to steeply inclined, tight, polyharmonic, folds with amplitudes up to several kilometres. These trend between NE and NW and generally plunge shallowly N or S. They dominate the map scale fold structure in the region. The folding is designated D2a in the literature to distinguish it from high strain zones (D2b) developed by simple shear parallel to the D2a crenulation cleavage (S2) and which localise some of the earliest extensive alteration features in the area.
- D3 was heterogeneously developed over the region varying from ductile NW-NE trending folds with steep axial surfaces and shear zones to brittle faulting and fracturing. Its timing appears to match the emplacement of the batholithic granitoids and the varying styles of metasomatic alteration.
- D4, resulted in NE-trending folds with steep axial surfaces, and further reactivation of S2a.

In its later stages D3 probably relates to the deposition of much of the economic mineralisation in the region, and in particular the White Range Project copper mineralisation.

Figure 3 shows the location of the Fetch’s White Range tenements projects in relation to the GSQ published regional geology and the surrounding significant mines. The Fetch tenements predominantly lie within what has been termed in the past as the Maronan Supergroup which comprises the Kuridala, Mt Albert and Soldiers Cap Group of rocks. The Kuridala Group features the Marimo Basin which has been interpreted as a complete cycle of basin



sedimentation, probably related to ensialic rifting. The Supergroup crops out over an area of some 15,000 km<sup>2</sup> and is unconformably overlain in the east and the south by Mesozoic sediments

Granite intrusions from the Williams batholith surround the tenements, with the Malakoff Granite in the north, the Wimberu Granite in the west and the Squirrel Hills Granite in the south. These plutons were intruded during the later phases of deformation of the supergroup.

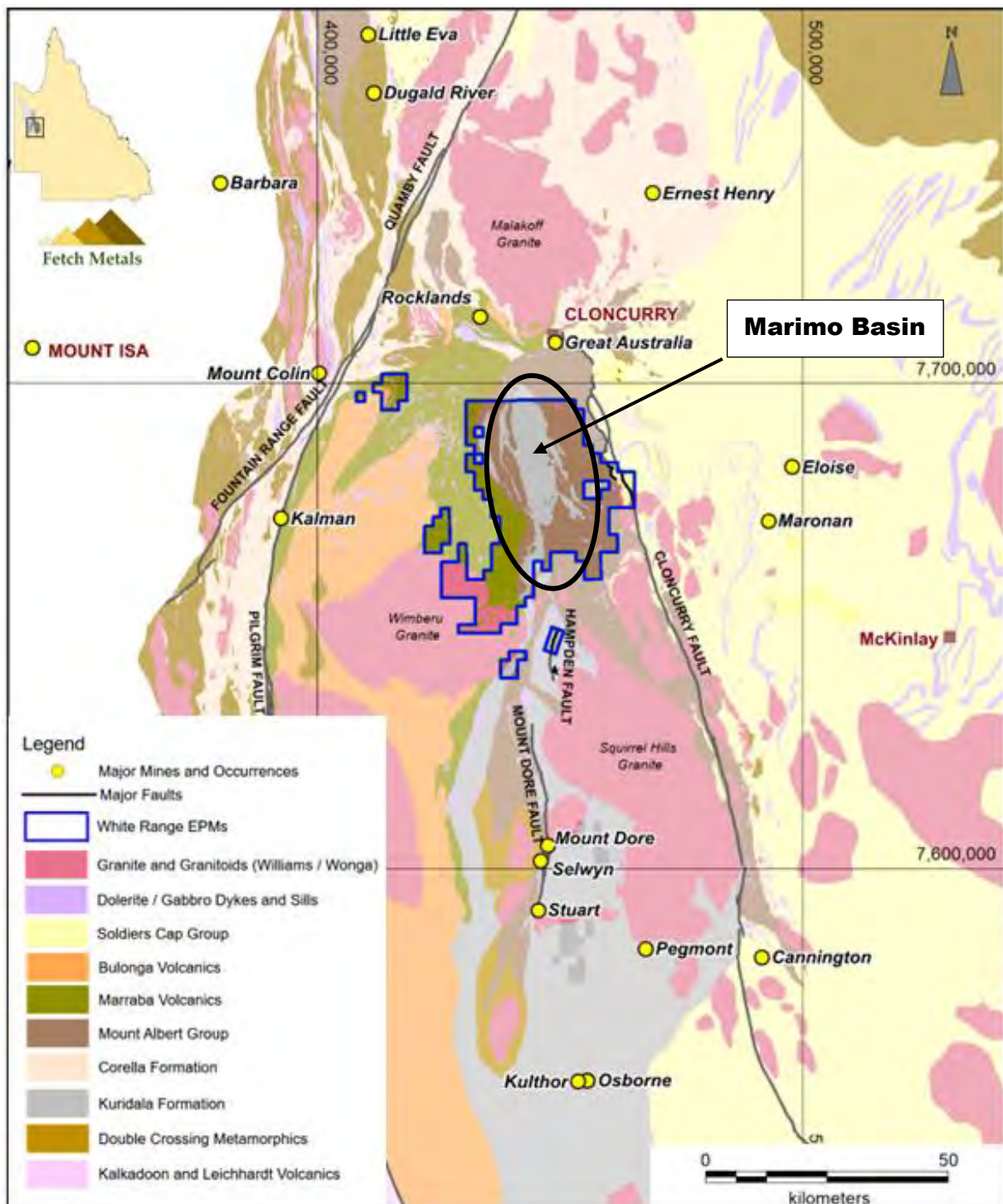
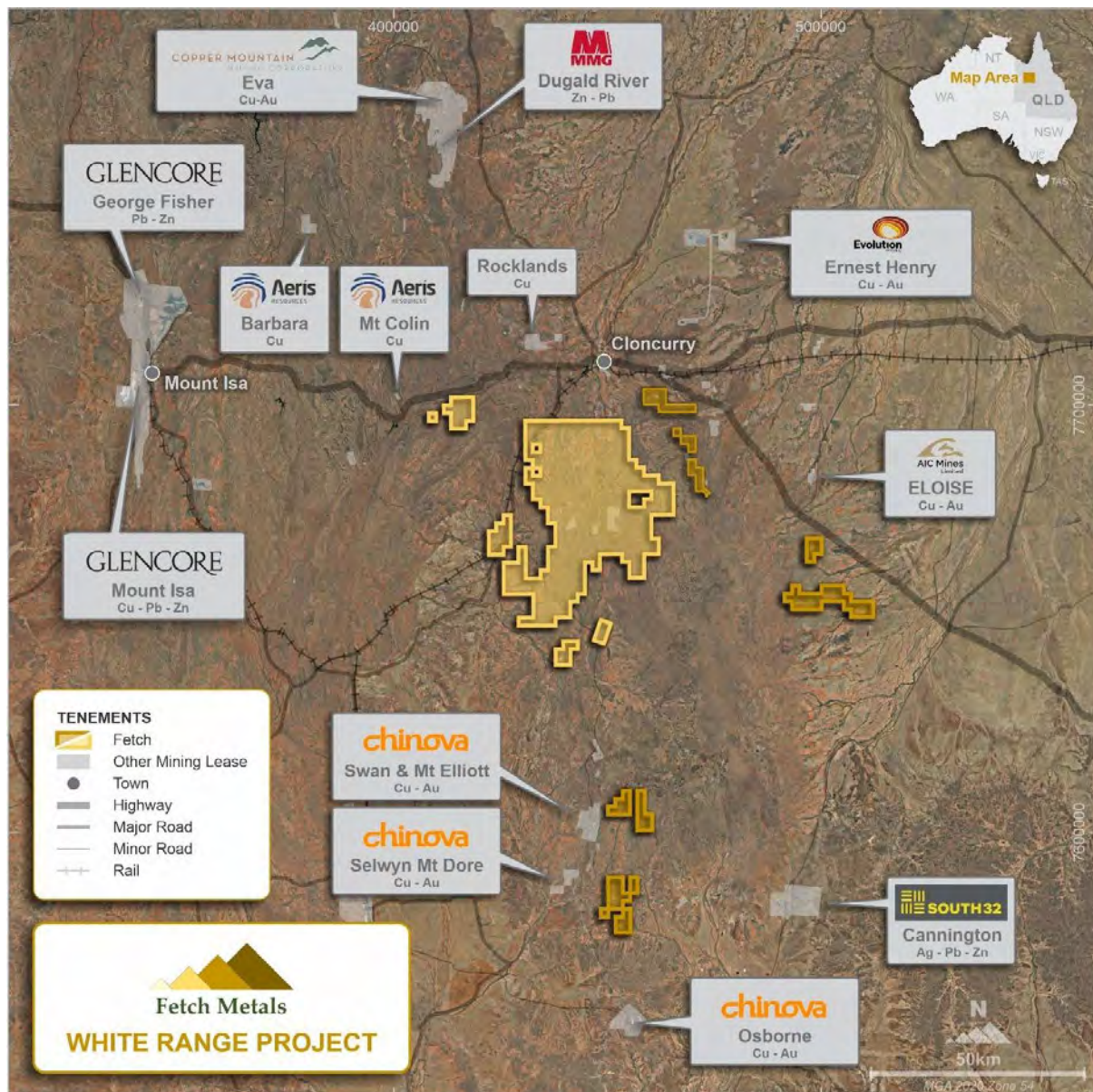


Figure 3: Regional Solid Geology Map for the EFB of the Mt Isa Inlier

The eastern margin of the tenements is represented by a major terrane boundary, the Cloncurry Fault.

Regionally extensive north-south structures, associated with the granite emplacement during the second to third phase of deformation, appear to be the most commonly mineralised structures in the EFB.

Figure 4 shows the major mines and mineral deposits in the general vicinity of the Fetch tenements. The majority of the deposits comprise copper mineralisation with some subordinate gold.



**Figure 4: Mt Isa Inlier Major Mineral Deposits in Relation to Fetch Tenements**

Table 3 provides nominal Mineral Resources (and their year of publication) for the deposits shown in Figure 4. Some of the figures are remaining Mineral Resources following mining depletion, whilst others are the original published Mineral Resource.



**Table 3: Mineral Resources for Deposits in the Mt Isa Inlier**

<b>Copper (+gold)</b>						
<b>Company</b>	<b>Deposit</b>	<b>Commodity</b>	<b>Mt</b>	<b>Cu %</b>	<b>Au g/t</b>	<b>Year</b>
Copper Mountain	Eva	Cu-Au	171.0	0.46	0.05	2020
MMG		Zn-Pb	86.8	1.40	0.06	2020
Evolution	Ernest Henry	Cu-Au	89.8	1.17	0.60	2017
Copper Resources Australia	Rocklands	Cu	56.7	0.64	0.15	2021
AIC Mines	Eloise	Cu-Au	10.0	3.20	0.70	2017
Chinova	Swan / Mt Elliot	Cu-Au	353.7	0.60	0.35	2017
Chinova	Selwyn	Cu-Au	95.1	0.74	1.11	2002
Chinova	Mt Dore	Cu-Au	110.4	0.55	0.10	2016
Chinova	Osborne	Cu-Au	29.8	1.40	0.80	2010
Aeris	Barbara/Mt Colin	Cu	3.3	2.55	0.36	2021
Glencore	Mt Isa	Cu	225.0	3.30		2007

<b>Lead/Zinc/Silver</b>							
<b>Company</b>	<b>Deposit</b>	<b>Commodity</b>	<b>Mt</b>	<b>Pb %</b>	<b>Zn %</b>	<b>Ag g/t</b>	<b>Year</b>
South32	Cannington	Ag-Pb-Zn	79	7.9	5.4	262	2020
MMG	Dugald River	Zn-Pb-Ag	57.3	2.0	13.2	35	2015
Glencore	George Fisher	Pb-Zn	150	6.0	7.0	150	2007

## 5 Exploration Models

The Cloncurry region is well endowed with mines and advanced projects containing significant copper, gold, silver, lead and zinc mineralisation. The majority of the copper deposits come under three general categories:

1. Structurally Controlled Copper (“SCC”) e.g. Mt Dore, Rocklands
2. Iron Oxide Copper Gold (“IOCG”) e.g. Ernest Henry, Selwyn
3. Iron Sulphide Copper Gold (“ISCG”) e.g. Osborne, Eloise

Primary copper mineralisation is in the form of chalcopyrite but in several instances, there is a substantial oxidation zone, 10s of metres thick, associated with the mineralisation. This oxidation zone has resulted in the generation of secondary copper sulphides e.g. chalcocite/covellite and copper oxides e.g. malachite and chrysocolla.

In some instances, the combination of favourable structure and preferential lithological unit may result in the formation of a mineral deposit whereby the deposit might be termed a structurally-controlled stratabound type.

Other deposit types associated with EFB are the Broken Hill-Type (“BHT”) as exemplified by Cannington and Maronan.



The basic model for the SCC deposit type in the Cloncurry area is that hydrothermal fluids with dissolved copper (and gold) have been generated from the Williams batholith. Figure 5 is an example of how hydrothermal fluids might be generated from a large granite batholith.

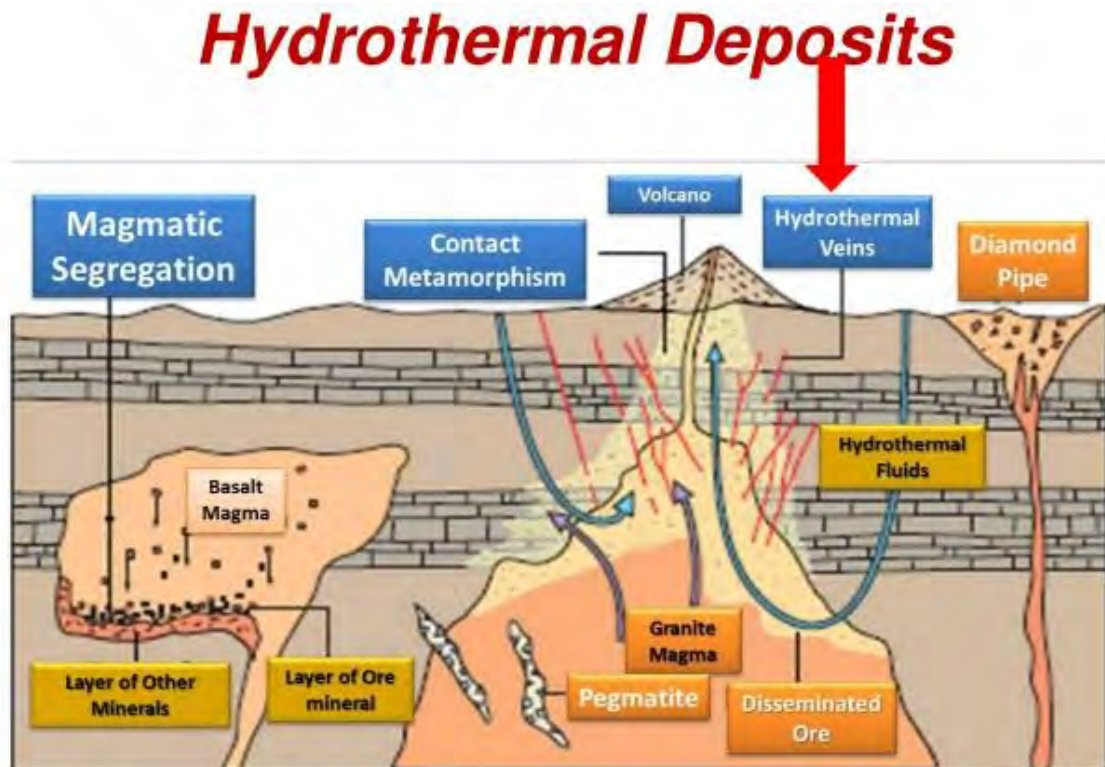
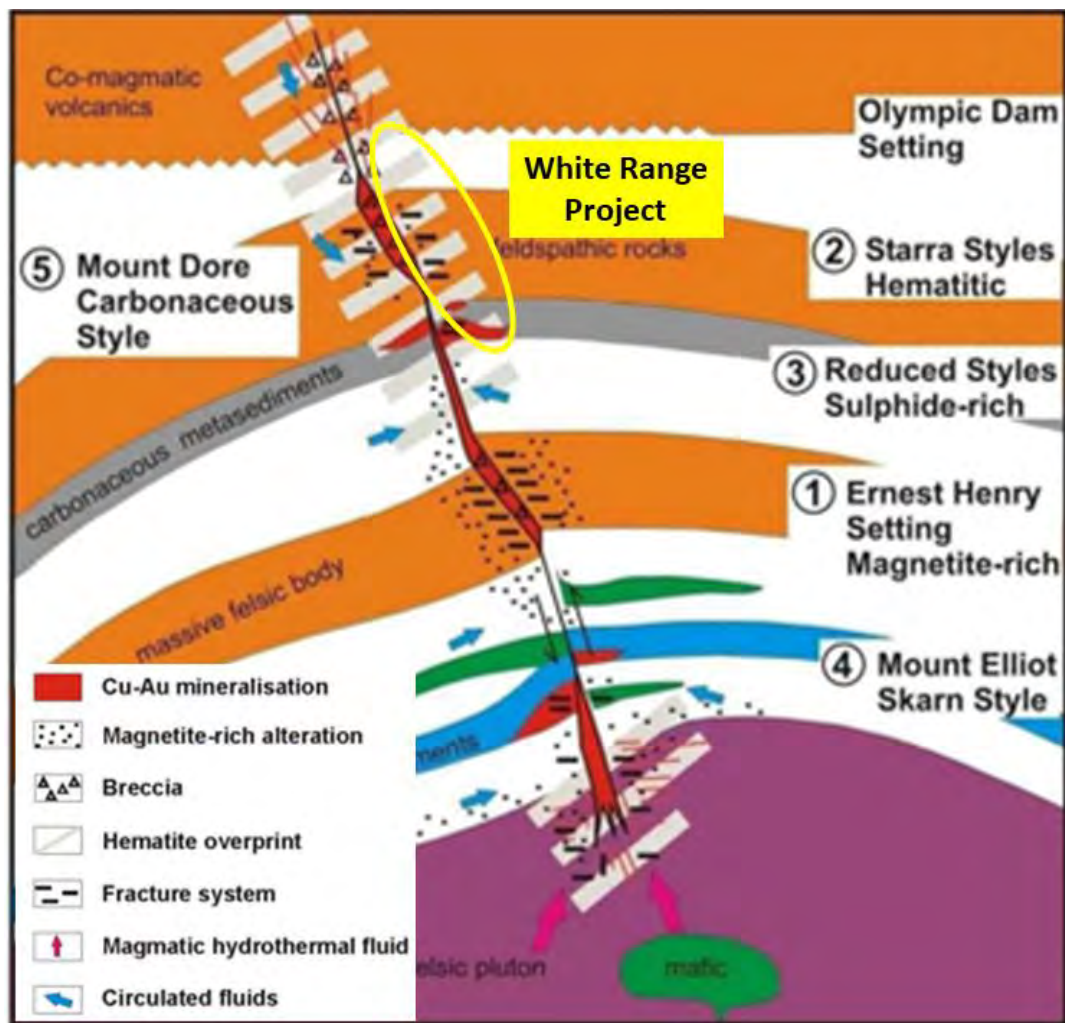


Figure 5: Schematic Diagram of Hydrothermal Systems

These fluids then travel along dilations or openings caused by pre-existing structural corridors. Sometimes there may be 'lateral bleeding' of mineral fluids into a preferred lithological/structurally affected unit e.g. the Answer the Slate or a breccia unit. Figure 6 is an example of the formation of some of the copper deposit types found in the Cloncurry area.



**Figure 6: A Schematic Example for the Formation of Copper Deposits in the EFB**

*(source: QMC Presentation, original author unknown)*

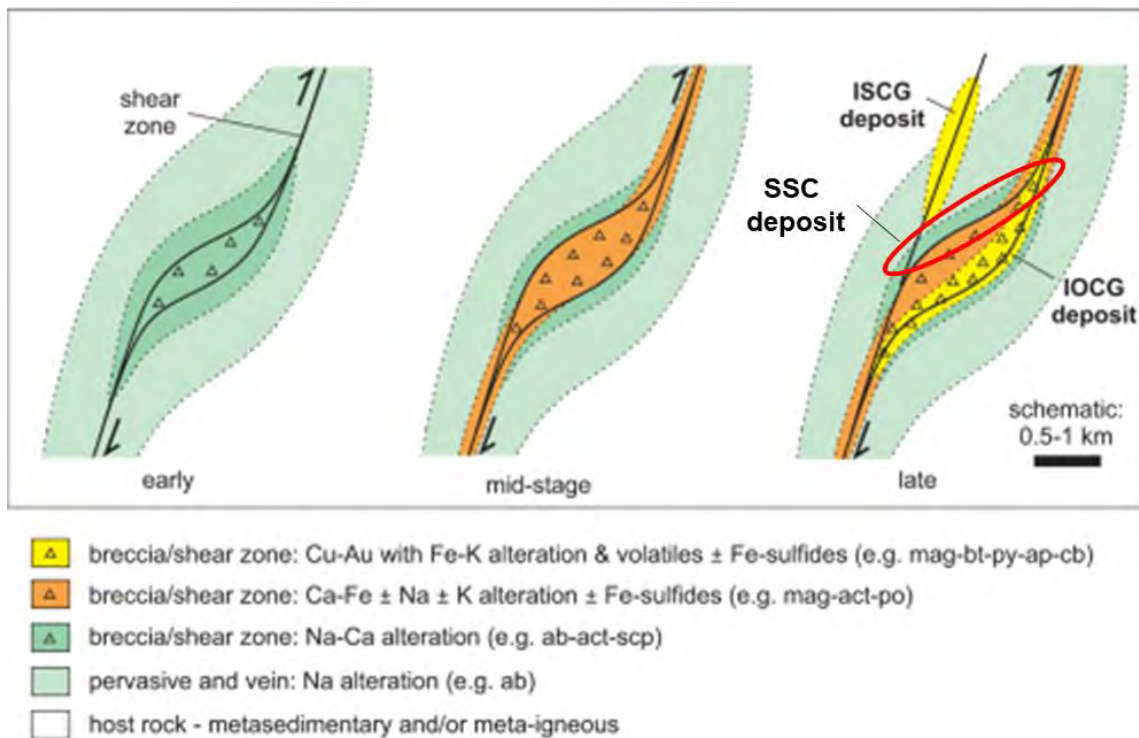
The geological setting for the White Range copper mineralisation has been interpreted to have many similarities to that as identified at the Mt Dore Mine. The copper mineralisation at Mt Dore is a complex arrangement of structurally-controlled copper sulphide and oxide mineral disseminations, blebs and veinlets. The Mid-Proterozoic host rocks are a reduced sequence of variably faulted black shales/carbonaceous meta-pelites, grey meta-siltstones with thicker beds of phyllite and schist of the Kuridala Group. The host units have a moderate dip to the west with the meta-sedimentary sequence over-thrusted by the younger Mt Dore granite. The package of rocks hosting the Mt Dore Deposit has undergone intense deformation amplified by the competent hanging wall granite and quartzite footwall creating a confined zone of high strain. This has resulted in uneven strain partitioning enhancing brecciation and fracturing within the black shales/carbonaceous meta-pelites. The meta-pelites and phyllites bounding the black shales have accommodated strain in a more ductile fashion resulting in less accommodation space for mineralising fluids. Thus black shales/carbonaceous meta-pelites host the bulk of the mineralisation. Oxidised ground water has been able to penetrate this mineralised zone due to the high degree of fracturing and resulted in both in situ oxidation of primary copper sulphide mineralisation and some copper mineral dissolution and supergene enrichment. The Oxide Zone hosts secondary copper assemblages formed during oxidation, comprising chrysocolla, cuprite, azurite and malachite; native Cu is also present in this zone.

Copper secondaries are often found in anastomosing fracture networks. A Transitional Zone has been identified with chalcocite as the dominant Cu phase with accessory covellite. Native Cu is also present in this zone often associated with faults. The Primary Zone is dominated by primary sulphides, namely chalcopyrite with accessory bornite and sub economic sphalerite.

Characterisations of the deposit types are:

- SCC deposits (copper veins, veinlets & disseminations in sheared rock) (Mt Dore)
  - Vein and breccia hosted
  - Occur at lithological boundaries – competency and rheology contrast
  - Narrow alteration haloes
  - Fault controlled – brecciation and dilation fluid controls
  - Variable geophysical responses (host dependent)
- IOCG deposits (magnetite or haematite-rich; disseminated, breccias) (Ernest Henry):
  - Breccia bodies seeking dilational openings
  - Oxidised terranes, magnetically active
  - Fe oxide host bodies (magnetite, haematite) and alteration haloes generate gravity and magnetic anomalism
  - Strong IP chargeability anomalies
  - Broad alteration haloes
  - Weak to no EM anomalies
- ISCG deposits (pyrrhotite-rich; massive, high grade) (Eloise, East Osborne):
  - Tabular bodies following fault structures and rheological contacts
  - Reduced terranes, magnetically quiet (carbonaceous and graphitic shales)
  - Fe in form of pyrrhotite and pyrite; may be completely non-magnetic
  - Weak to no regional gravity anomalism
  - Strong ground EM anomalies

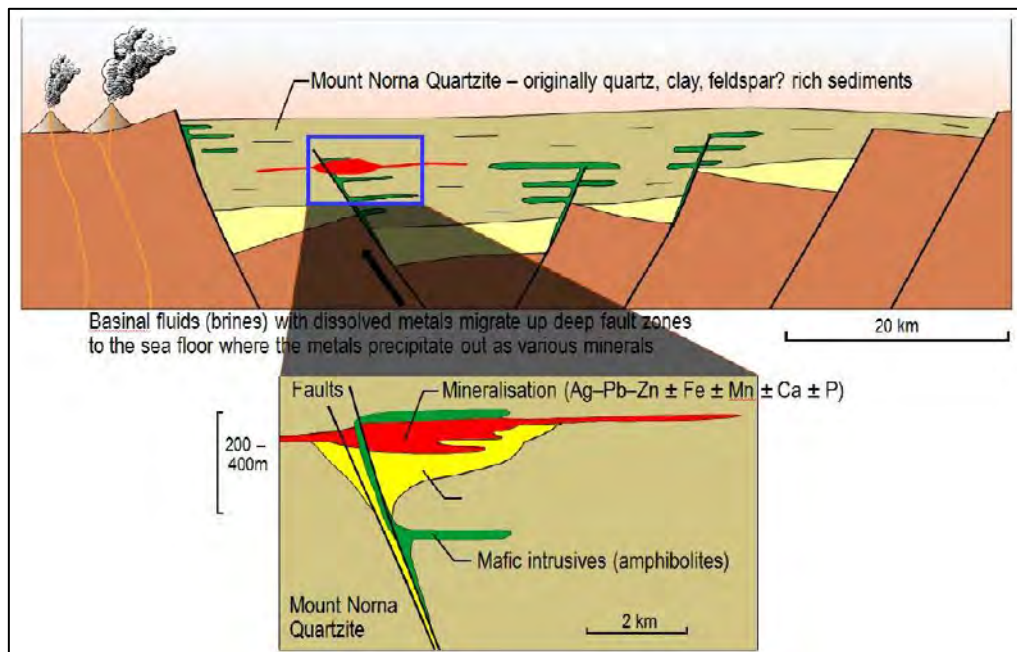
Figure 7 is a schematic example of the spatial relationship for the three types of deposits.



**Figure 7: Syn- to Late-Orogenic IOCG & ISCG deposits, and SSC deposits**

(source: Skirrow 2022)

BHT deposits are polymetallic (Ag-Pb-Zn), stratabound, massive sulphide bodies hosted in major sedimentary packages of sandstone protoliths underlying siltstone protolith sequences. The sedimentary packages have experienced a high degree of metamorphism. The genetic model for a BHT deposit is included as Figure 8. In the EFB the deposits occur within 5km of NS to NNE/NNW faults that are cut by NW faults.



**Figure 8: BHT Genetic Model**

(source: Huisman 2015 (BHP/South32)).



## 6 White Range Project

### 6.1 Introduction

The White Range Project is located in the EFB of the Mt Isa Inlier, approximately 780 km west of Townsville and 40km south of Cloncurry. The geology of the area is well known, and it has an extensive exploration history.

Fetch has consolidated the 24 current tenements into a contiguous block which makes up the White Range Project after acquiring ground from ActivEX and Young Australia Mines (Figure 9). These comprise 12 EPM's, 2 MDL's and 10 ML's.

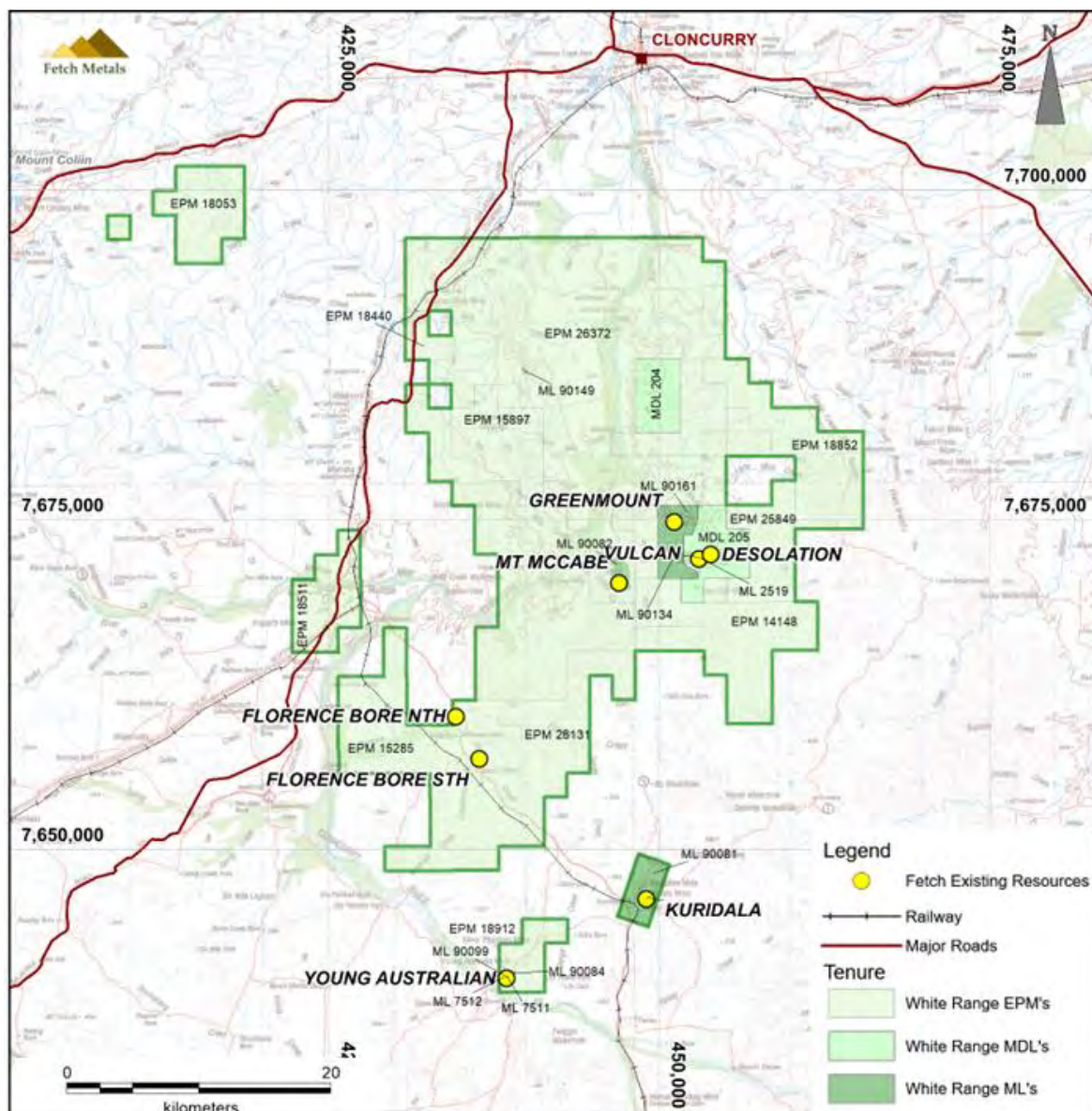


Figure 9: Mineral Tenements & Infrastructure for the White Range Project

The White Range Project consists of 8 advanced deposits with Mineral Resources totalling some 40Mt @ 0.66% copper for 263 Kt of copper metal, with gold and cobalt credits. The deposits comprise Greenmount, Desolation, Mount McCabe, Vulcan, Kuridala, Young

Australian and the Florence Bore deposits. The Mineral Resources have been reported under the 2012 JORC Code & Guidelines by previous explorers except for Desolation which has been reported under the 2004 JORC Code.

Fetch considers the White Range Project to not only contain Mineral Resources, but also holds significant brownfields and greenfields exploration potential. The project area also includes several additional highly prospective copper and precious metal occurrences and opportunities.

Exploration programmes and rationales are being developed to systematically identify and expand the known Mineral Resources.

## 6.2 Local Geology & Mineralisation

The White Range Project is situated in the Marimo-Staveley Domain (refer to Figure 2) in the EFB with host rocks that are predominately Mid Proterozoic metamorphic rocks. The domain is a narrow zone to the east of the Mitakoodi Domain and extends about 200 km south from Cloncurry. The oldest rocks are the 1752-1740 Ma Double Crossing Metamorphics. Other units include the Staveley Formation, the Roxmere Quartzite (< 1710 Ma) and the Answer Slate (1655-1610 Ma), which are in structural contact with the Double Crossing Metamorphics. The Staveley Formation and the Roxmere Quartzite are part of the Mount Albert Group, and the Answer Slate is part of the Kuridala Group. These rocks were affected by all Isan deformational events and the domain was intruded by the ~1510 Ma Wimberu Granite, part of the Williams Supersuite.

The central northern portion of the White Range Project area hosts the Marimo Basin, a 30km by 20km portion of the Marimo – Staveley domain which holds a number of the project's Mineral Resources (Figure 10).

Regional fault corridors with multi-stage histories of movement and fluid activity have played a major role in the localisation of mineralisation in the region. Of significance to the White Range Project area is the close relationship of the Hampden Fault to the Mt Dore Fault Zone which forms part of a +100 km long N-S trend of Cu ± Au ± Ag ± Co deposits from Stuart, south of Selwyn to the Great Australia Mine at Cloncurry.

The mineral deposits of the White Range Project are structurally complex due to multiple deformation events leading to significant folding and faulting, both brittle and ductile.



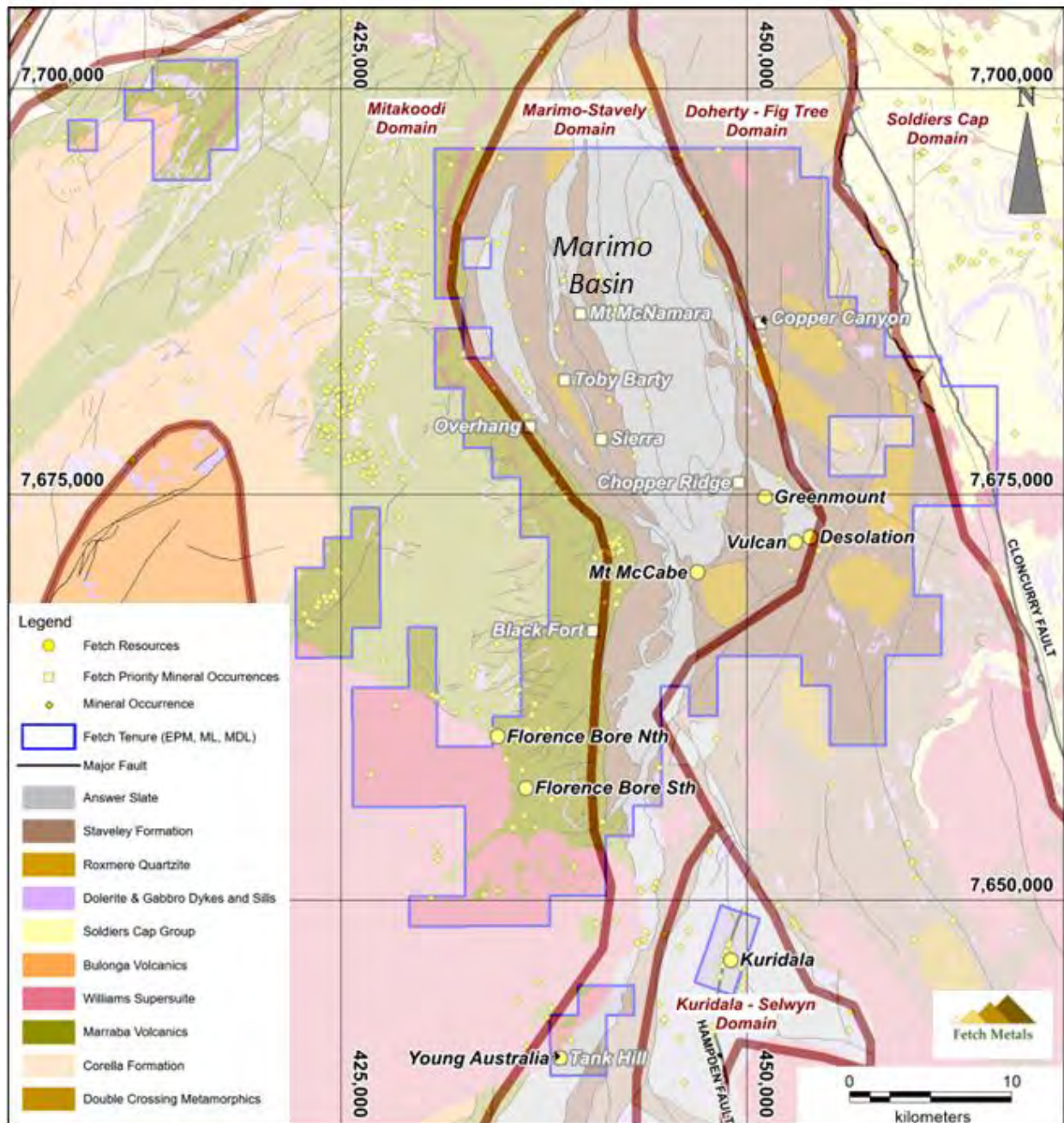


Figure 10: Solid Geology Map for the White Range Project.

### 6.2.1 Stratigraphy

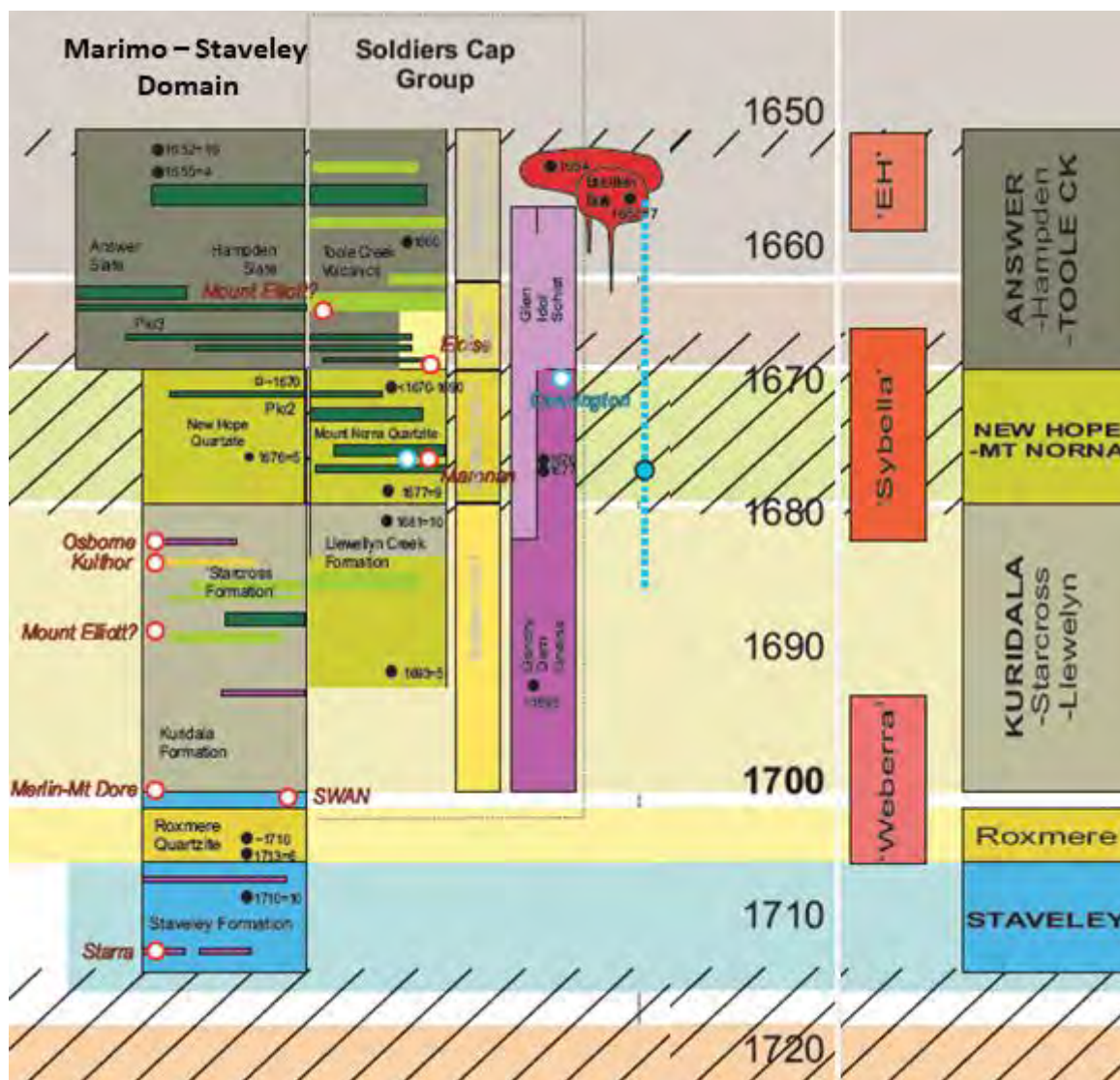
The White Range Project area is dominated by a number of variably metamorphosed sedimentary units from the Maronan Supergroup i.e. the Kuridala, Soldiers Cap and Mount Albert Groups.

The Staveley Formation of the Mount Albert Group is a fine to medium grained, massive to well bedded sandstone unit with subordinate siltstone and calcareous, albitic and dolomitic rocks. Samples from within the Staveley Formation consistently yield maximum depositional ages of ~1740 Ma.

Above the Staveley sits the Roxmere Quartzite (also of the Mount Albert Group), a polymictic pebble/cobble conglomerate to very coarse litho-feldspathic sandstone with minor calcareous and siltstone units. The Roxmere Quartzite has a gradational relationship with the Staveley Formation and has yielded maximum depositional ages of ~1710 Ma, suggesting that the Staveley Formation is younger than the Corella Formation (in the Tommy Creek Domain and other domains to the west).

The other important stratigraphic unit of the project area is the Answer Slate of the Kuridala Group, which is a primarily dark grey carbonaceous slate, with subordinate layers of phyllite, metasiltstone, mica schist, and minor feldspathic quartzite and chert. The Answer Slate has maximum depositional ages of ~1655 Ma and contains a rhyolite dyke (originally interpreted as a felsic tuff) with an age of ~1610 Ma.

A Time-Space plot for the White Range Project is shown as Figure 11 (Hinman, 2018).



**Figure 11: Time-Space Chart for the White Range Project**

(source: Hinman 2018)

Alteration zones, often on a large scale, are common features associated with all types of structures in the regional Marimo Basin district. The Answer Slate and the Staveley Formation



underwent regional and deposit-scale alkali-rich metasomatism as a result of the intrusive granitic bodies of the Williams Supersuite. The Answer Slate often hosts ‘white-rock’ (microcline-quartz-pyrite) alteration. These extensive alteration zones are overprinted by episodic vein assemblages dominated by microcline with subordinate albite, sericite (retrogressed microcline) and lesser hematite, rutile, tourmaline, quartz, dolomite  $\pm$  sulphides  $\pm$  magnetite. The underlying Staveley sequence contains ‘red-rock’ (hematite-microcline) alteration and intraformational breccias. The episodic veining consists of microcline, dolomite, calcite with lesser albite, muscovite, pyrite, biotite, magnetite and chalcopyrite. Vein density generally decreases in the Staveley Formation away from the contact with the Answer Slate.

Peak metamorphic grade is largely agreed by various authors as occurring during the regional D2 event. There is a broad-scale relationship between granites and the higher-grade amphibolite-facies metamorphic rocks. Metamorphism across the inlier occurred in a series of events during the Isan Orogeny (1610 – 1500 Ma), however some of these events may be local in extent and related to various granitic intrusions. Localised events occurred prior to the Isan Orogeny during the emplacement of the Wonga and Sybella Batholiths, at ca 1740 Ma and 1672 Ma, respectively.

The overall pattern in the White Range Project area is of a series of north – south amphibolite facies belts separated by zones of mainly greenschist facies but with local variations of metamorphic grade common, particularly around some of the intrusives. This gross pattern is related to the regional D2 metamorphic peak (1600-1580), and the pattern is locally complicated by subsequent deformation and faulting, and localised high temp, low pressure contact metamorphism around the younger Williams granites. Increased metamorphic grade is seen in the deposits at Florence Bore which lies immediately adjacent to the Wimberu granite.

### 6.2.2 Structure

All the deposits of the White Range Project can be argued to be associated with significant faults and shears with most deposits discordant to the main lithological boundaries. Mineralisation is generally in multiple vein sets and or shear zones. At Mt McCabe, more classic broad clast-to-matrix supported breccias exist and show similarities to significant IOCG breccia systems in the region e.g., Ernest Henry.

North-south structures, often within broad regionally extensive north south structural corridors appear commonly as mineralised structures. These north-south structures also appear responsible for controlling granite emplacement during the second to third phase of deformation, i.e. D2 and D3 and in doing so, helped control hydrothermal fluid generation, transportation and emplacement, ultimately during D3, the formation of the main mineral systems in more brittle environments.

Mineralisation including copper, gold, uranium and rare earths are seen as being mobile during D2 to D3. Detailed studies at Mary Kathleen and Trekelano (Oliver 1995), Cannington (Boden 1996), Dugald (Guojian Xu, 1996) and Selwyn (Rotherham, 1996) all suggest D2 to D3 mineralisation events. Large structures in the White Range Project area are associated with copper, gold and cobalt mineralisation e.g., Greenmount is on a NNW structure, Young Australian and Kuridala are on controlling NNE structures with the Florence Bore

mineralisation controlled by NE trending structures. At Mt McCabe a combination of NS and intersecting ENE to EW structures have focussed a brittle-ductile breccia system that hosts the mineralisation.

### 6.2.3 Mineralisation

The impact of controlling structures on the location of mineralisation within the White Range Project is readily apparent. A great deal of study work has been undertaken over many decades but can be summarised as:

- The vast majority of deposits in the area are associated with faults and ductile shears and as a consequence, most deposits are discordant to the main lithological boundaries.
- Mineralisation is found most often in multiple vein sets or in shear zones with associated cross cutting faults.
- Substantial oxidation, locally down to 100-200ms depth, has impacted the primary sulphide mineralisation converting it to secondary (copper) mineralisation. A lot of the secondary mineralisation is the result of in-situ oxidation with minor amounts of secondary enrichment.
- Reported sulphide species across the project area include cuprite, chalcopyrite, chalcocite. In the oxidised (~100m) portion of the orebodies, copper species are dominated by malachite, with lesser chrysocolla and rare azurite.
- The D<sub>2</sub> to D<sub>3</sub> mineralisation event sees the mobilisation of copper, gold, cobalt, rare earth elements and other minerals and various detailed studies have been compiled including at Mary Kathleen, Trekelano (Oliver 1995), Cannington (Boden 1996), Pegmont (Williams et al. 1996), Dugald River (Guojian XU, 1996) and Selwyn (Rotherham, 1996 and ERA Maptec, 1994) and all suggest a D<sub>2</sub> to D<sub>3</sub> mineralisation event.
- Large NS to NW structures, associated with copper, cobalt and gold, are numerous in the White Range area, with Greenmount on a NNW orientation and McCabe on NW orientations.
- Brecciated zones, i.e. in a more ductile-brittle environment, are found in the Marimo Basin, illustrated with examples at Mt. McCabe (Laing, 1997). Large areas of brecciation are mapped around the Greenmount deposit but also outcrop in many poorly mapped areas of the basin including further north of Greenmount at Copper Canyon.
- Three large-scale controls on mineralisation are apparent to date in the district and have implications for future exploration, these are:
  - Favourable lithological boundaries, i.e. the Stavely Fm/Answer Slate contact as at the Greenmount deposit. These lithologies provide contrast in both mechanical and chemical characteristics appropriate for mineral body formation. At Kuridala, the Toole Creek Volcanics have both reducing and oxidising units juxtaposed with the rheologically more competent Mount Norna Quartzite.
  - A favourable host unit e.g. the Answer Slate which is both chemically favourable for precipitating mineralisation and is more prone to shearing, opening up precipitation sites for mineralisation.

- Mineralising channels: N-S faults which appear to compartmentalise mineralisation.

### 6.3 Exploration History and Mining

Over 100 years of exploration and prospecting have been completed on the White Range Project area. The discovery in the early 1900s of high-grade copper oxide mineralisation at surface resulted in the Kuridala mine.

The following passage for Kuridala is taken from *Mines in the Spinifex* (with slight adaptations) by Geoffrey Blainey, Published by Angus and Robertson 1960:

*“Kuridala had six hotels, four billiard saloons, three dance halls and a cinema, two ice-works, a hospital schools, churches and shops and housed a town of 2000 people. It was the largest town west of Townsville.”*

The principle mine was the Hampden, which started operations with ore containing 37% copper. The mine operated until 1921 when it was closed due to the combined effects of a decrease in copper grade and a fall in the price of copper. The Hampdens Consols mine was worked intermittently from 1908 to 1919, when work was stopped by a fire. Total production for Hampdens and Hampdens Consols amounted to 622,000 tonnes at 7.4% Cu.

Following on from Kuridala was the discovery of exposed mineralisation at Vulcan, Desolation and Mt McCabe, all of which were subject to small scale mining via open pit or underground methods. No production figures are available.

Greenmount was a blind deposit discovered in 1991 and had small scale underground trial mining, but no production figures are available. The discovery was the result of drilling a substantial surface geochemical anomaly.

Young Australia was discovered in the late 1960s and was mined as an open pit by Mount Isa Mines (MIM), now part of the Glencore group of companies. The mining targeted two parallel mineral zones with production amounting to 176,000 tonnes at 2% Cu with an additional 250,000 tonnes of low-grade mineralisation at 0.84% Cu.

Table 4 is an attempt to quantify copper production for the White Range Project area.

**Table 4: White Range Project Area Production**

Production	Mt	Au g/t	Cu %	Ag ppm
Underground	0.43	5.2	2.8	15
Open Pit	0.81	2.7	1.5	20
Total	1.24	3.6	2.0	19

Discovery of the Florence Bore deposits by ActivEX in 2010-14 was the result of drilling surface geochemical anomalism in combination with interpreted magnetic structures.

As a result of the surface discoveries for copper substantial surface and sub-surface exploration has been completed with in excess of 200 EPMs having been issued for the project area. Exploration has been completed by an array of major and junior mining and exploration companies including Rio Tinto Exploration Pty Ltd, and Chinova Resources Cloncurry Mines

Pty Ltd. The tenements were recently held by Matrix Metals in the early 2000s who completed Mineral Resource estimates for the deposits and undertook substantial mining and metallurgical studies. Commodity price slumps associated with the Global Financial Crisis in 2008-2010 resulted in the properties being acquired by QMC in 2011. QMC completed further exploratory work including drilling that resulted in updates to the Mineral Resources for several of the existing deposits with the majority being reported in accordance with the 2012 JORC Code & Guidelines.

Figure 12 shows the historical drilling for the White Range area with a majority of the northern holes being RAB/aircore.

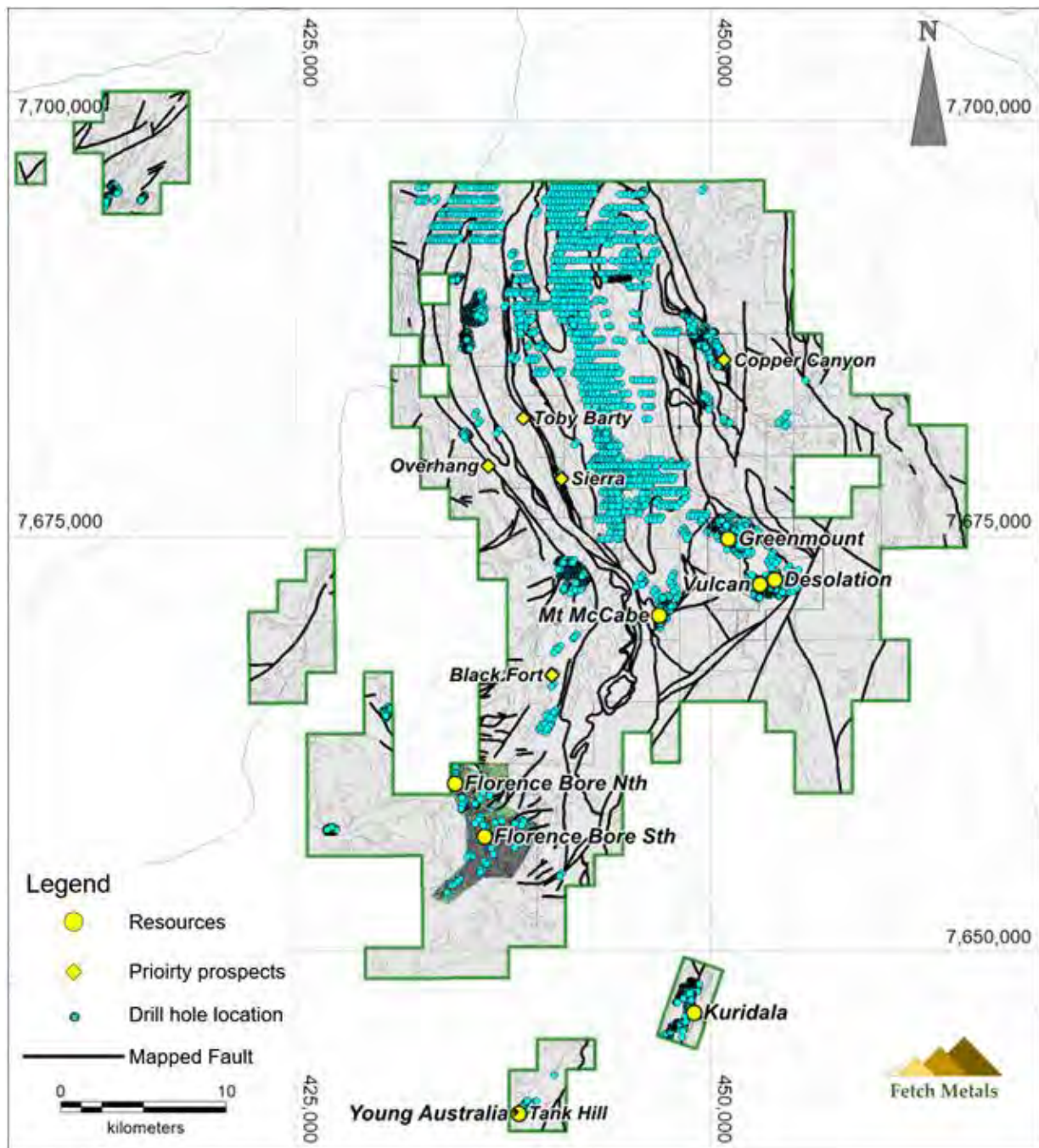
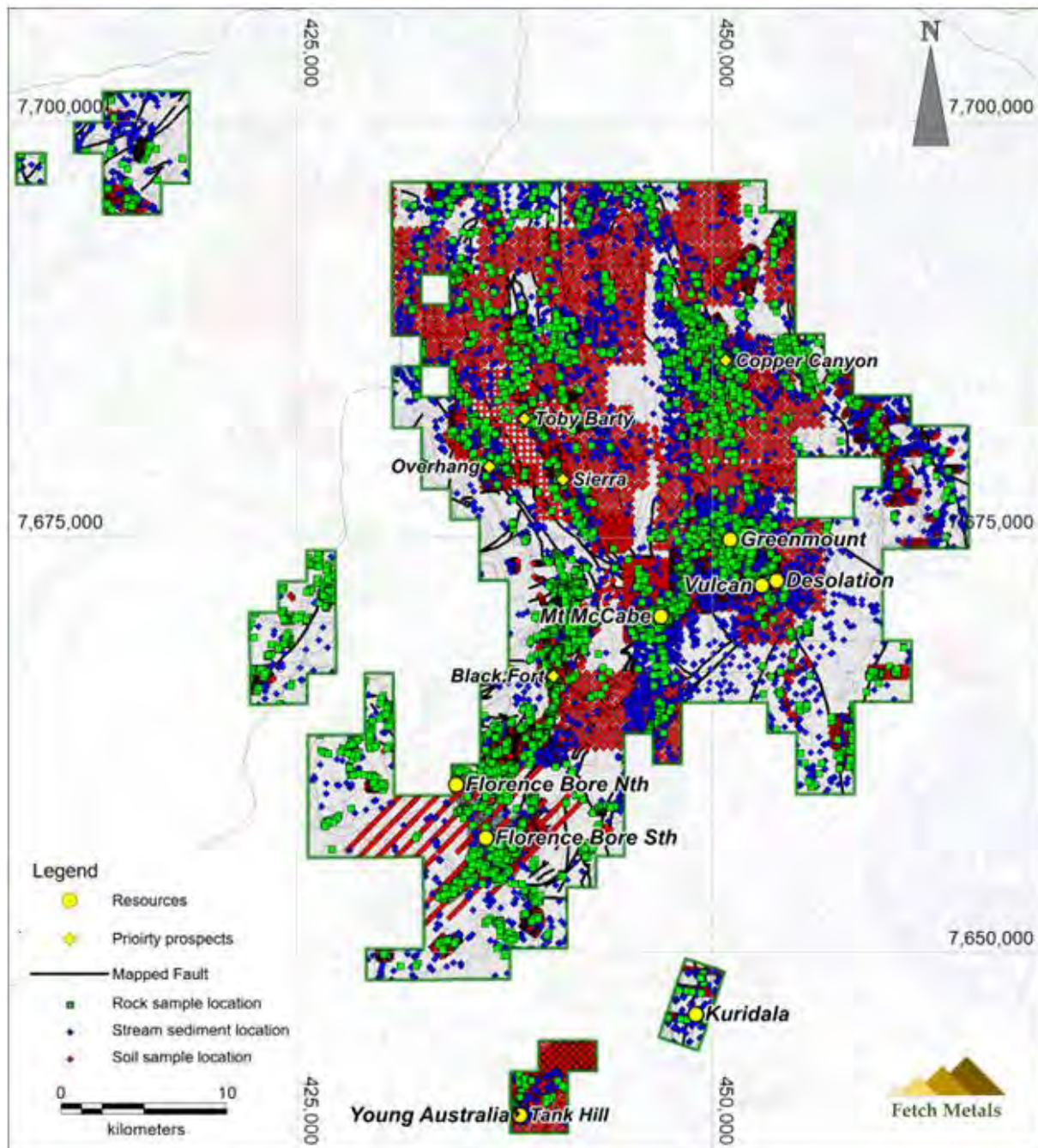


Figure 12: Historical Drilling for the White Range Area



Figure 13 shows the surface geochemical coverage for the White Range area. As can be seen from the map the area has substantial coverage which will help drive the exploration in part to search for blind orebodies rather than having an expectation of locating previously unknown exposed mineralisation.



**Figure 13: Historical Geochemical Sampling for the White Range Area**

In addition to the surface geochemistry, the area has been covered by government funded airborne surveys for magnetics, radiometrics and 2km spaced EM programs. Additionally, large sections of the White Range Project were covered by a 1997 AEM program undertaken by BHP. Numerous, ground-based geophysical surveys have been completed including magnetic, IP and moving loop EM.

## 6.4 Significant Deposit Information

### 6.4.1 Introduction

Figure 14 shows the location of the eight major deposits with Mineral Resources for the White Range Project. The backdrop is the regional airborne TMI image which suggests that the deposits are linked to major discontinuities in the underlying geology.

Five of the eight defined resources (Desolation, Greenmount, Mt McCabe, Vulcan and Young Australia) are located in the Marimo – Stavely Domain of the EFB, Kuridala occurs in the Kuridala – Selwyn Domain and the Florence Bore mineralisation is located in the Mitakoodi Domain.

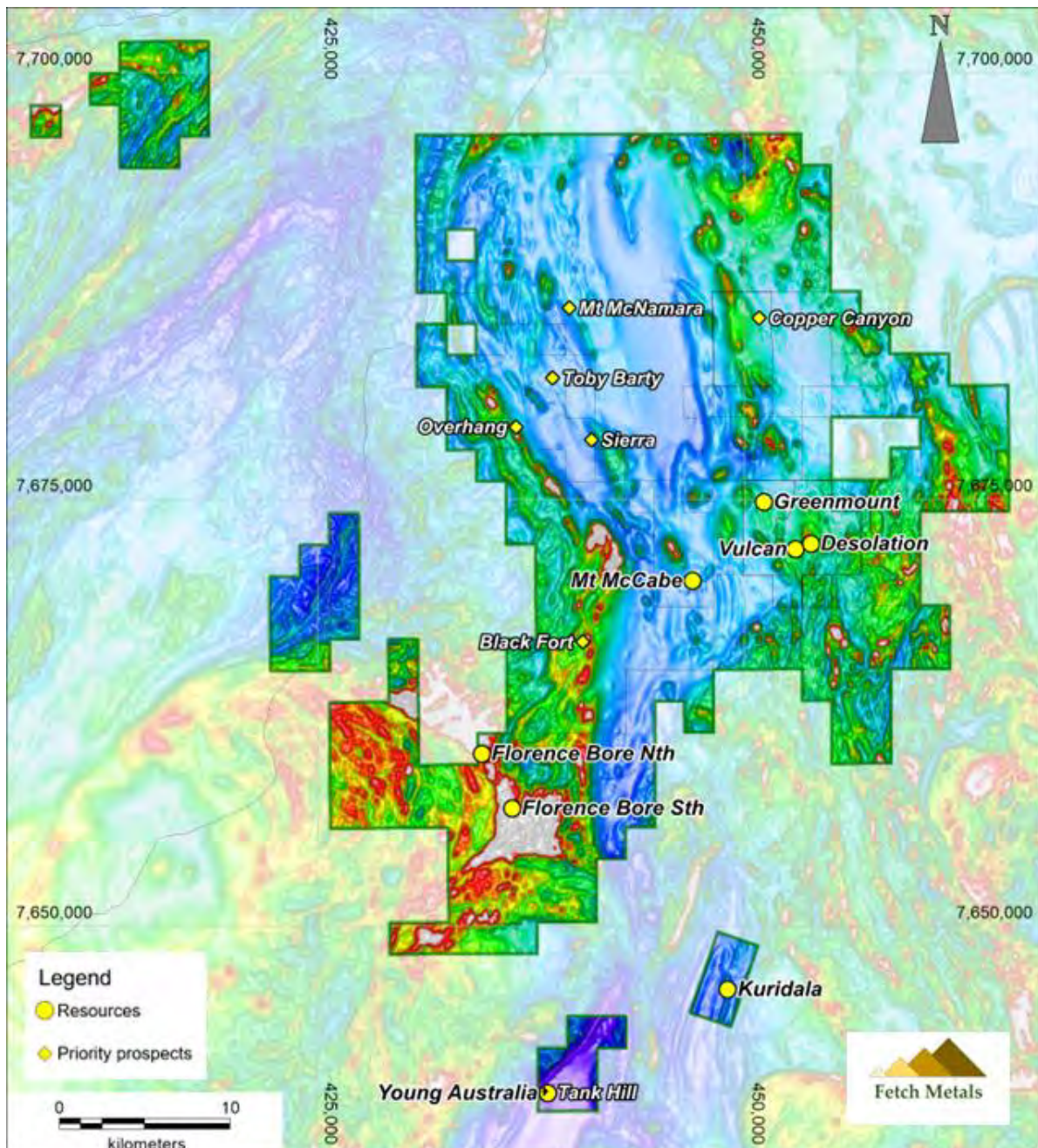


Figure 14: White Range Copper Deposits on RTP Airborne Magnetic Image



With the exception of the Florence Bore deposits, all of the deposits are hosted proximal to the contact of the Kuridala Group (Starcross Formation, Answer Slate and Hampden Slate) with the Mount Albert Group (Staveley Formation and Roxmere Quartzite). The Florence Bore North and South deposits are hosted in the Timberoo Member of the Malbon Group close to the contact with the Wimberu Granite.

Table 5 provides some of the details regarding the publication of the Mineral Resources by QMC. The Competent Person (“CP”) column can contain more than one name, and this is a function of responsibilities documented in the supplied reports. The first name is the CP responsible for the Mineral Resources, the second name(s) is either confirming a review of the Mineral Resources, in this case John Horton of ResEval Pty Ltd, or responsibility for the Exploration Results. It should be noted that the Desolation deposit was reported under the 2004 JORC Code, but there has been no substantial work completed on the deposit since the reporting of its Mineral Resources in 2012.

**Table 5: Summary of Competent Persons for the White Range Mineral Resources**

<b>Deposit</b>	<b>JORC Code</b>	<b>Date of MRE</b>	<b>Competent Person(s)</b>
Kuridala	2012	Aug 2017, originally completed in 2010	Dr Guojian Xu (MAusIMM) John Horton of ResEval (CP FAusIMM)
Greenmount	2004	Sept 2013	John Horton of Golder Associates (CP MAusIMM) Doug McLean & Tony Martin (MAusIMM)
Mt McCabe	2012	Aug 2017, originally completed in 2010	Dr Guojian Xu (MAusIMM) John Horton (CP FAusIMM)
Young Australian	2012	July 2016	John Horton (CP FAusIMM) Dr Guojian Xu (MAusIMM)
Desolation	2004	Sept 2012	Dr Guojian Xu (MAusIMM) Doug Mclean (MAusIMM) (no specific responsibility assigned)
Vulcan	2012	Aug 2017, originally completed in 2010	Dr Guojian Xu (MAusIMM) John Horton of ResEval (CP FAusIMM)

In all the QMC reports the intention was to produce copper metal via a heap leach operation. This relies on there being oxidised copper species and the reports document the presence of oxide variants like malachite and chrysocolla, plus leachable copper sulphides like chalcocite. There are also mentions of interfingering of sulphide mineral zones with chalcopyrite. It is worth revisiting the metallurgical testwork to see what recoveries were achieved; minerals like chrysocolla are often notoriously difficult to process.

All Mineral Resources were reported at a 0.2% copper cut-off, although it was felt by QMC that a higher copper cut-off of 0.3% was probably more appropriate for the McCabe deposit on account of the terrain. This is possibly offset in the present day by the higher average commodity price for copper over the last 5 years.

Table 6 details the QMC Mineral Resources for its six deposits at a 0.2% Cu cut-off.

**Table 6: Mineral Resources for the White Range Deposits 0.2% Cu cut-off**

<b>Greenmount</b>	<b>Mt</b>	<b>Copper %</b>	<b>Cu Kt</b>	<b>Cobalt ppm</b>	<b>Gold g/t</b>
Measured	1.16	1.26	14.6	680	0.46
Indicated	7.72	0.75	57.7	560	0.30
Inferred	3.78	0.57	21.4	430	0.20
<b>Total MRE</b>	<b>12.66</b>	<b>0.74</b>	<b>93.8</b>	<b>530</b>	<b>0.28</b>

<b>Kuridala</b>	<b>Mt</b>	<b>Copper %</b>	<b>Cu Kt</b>	<b>Cobalt ppm</b>	<b>Gold g/t</b>
Measured	2.49	0.9	22.4	200	0.16
Indicated	3.04	0.84	25.5	240	0.24
Inferred	1.65	0.73	12.0	270	0.22
<b>Total MRE</b>	<b>7.18</b>	<b>0.84</b>	<b>60.3</b>	<b>230</b>	<b>0.21</b>

<b>Young Australian</b>	<b>Mt</b>	<b>Copper %</b>	<b>Cu Kt</b>	<b>Cobalt ppm</b>	<b>Gold g/t</b>
Measured	0	0	0	n/a	n/a
Indicated	2.2	0.93	20.5	n/a	n/a
Inferred	2.9	0.68	19.7	n/a	n/a
<b>Total MRE</b>	<b>5.1</b>	<b>0.79</b>	<b>40.3</b>	<b>n/a</b>	<b>n/a</b>

<b>Mt McCabe</b>	<b>Mt</b>	<b>Copper %</b>	<b>Cu Kt</b>	<b>Cobalt ppm</b>	<b>Gold g/t</b>
Measured	2.72	0.65	17.7	310	n/a
Indicated	1.98	0.57	11.3	260	n/a
Inferred	3.01	0.49	14.7	100	n/a
<b>Total MRE</b>	<b>7.71</b>	<b>0.57</b>	<b>43.9</b>	<b>220</b>	<b>n/a</b>

<b>Vulcan</b>	<b>Mt</b>	<b>Copper %</b>	<b>Cu Kt</b>	<b>Cobalt ppm</b>	<b>Gold g/t</b>
Measured	0	0	0	0	0
Indicated	1.05	0.65	6.8	270	n/a
Inferred	0.36	0.63	2.3	270	n/a
<b>Total MRE</b>	<b>1.42</b>	<b>0.65</b>	<b>9.2</b>	<b>170</b>	<b>n/a</b>

<b>Desolation</b>	<b>Mt</b>	<b>Copper %</b>	<b>Cu Kt</b>	<b>Cobalt ppm</b>	<b>Gold g/t</b>
Measured	0	0	0	0	0
Indicated	0.82	0.76	6.2	600	0.25
Inferred	1.12	0.59	6.6	400	0.16
<b>Total MRE</b>	<b>1.94</b>	<b>0.66</b>	<b>12.8</b>	<b>500</b>	<b>0.2</b>

In addition, Mineral Resources were defined for the Florence Bore North and South deposits by ActivEX in 2014. The work was completed by H&SC with Simon Tear as the CP. The estimates were reported in accordance with the 2012 JORC Code & Guidelines and were



reported for a 0.5% copper cut-off. To simplify the global Mineral Resources, H&SC has re-reported the Florence Bore deposits at a 0.2% Cu cut-off (Table 7).

**Table 7: Mineral Resources for the Florence Bore Deposits**

					<b>0.5% Cu cut-off</b>	
<b>Deposit</b>	<b>Category</b>	<b>Mt</b>	<b>Cu %</b>	<b>Au g/t</b>	<b>Cu Kt</b>	<b>Au Kozs</b>
<b>FBN</b>	Inferred	1.11	0.81	0.15	9.0	5.4
<b>FBS1</b>	Inferred	0.5	0.68	0.14	3.4	2.2
<b>Total</b>	Inferred	1.61	0.77	0.15	12.4	7.6
					<b>0.2% Cu cut-off</b>	
<b>Deposit</b>	<b>Category</b>	<b>Mt</b>	<b>Cu %</b>	<b>Au g/t</b>	<b>Cu Kt</b>	<b>Au Kozs</b>
<b>FBN</b>	Inferred	2.14	0.59	0.11	12.7	7.6
<b>FBS1</b>	Inferred	1.51	0.46	0.09	6.9	4.4
<b>Total</b>	Inferred	3.65	0.54	0.10	12.4	12.0

#### 6.4.2 Greenmount

The Greenmount copper deposit is located 36km south of Cloncurry and lies within ML90134. It is the flagship deposit of the White Range Project. Figure 15 shows the terrain for the deposit (view looking NE). The deposit is elongated north-south, has a known strike extent of around 1,200 metres and attains a maximum width of about 90 metres.



**Figure 15: Greenmount Deposit**

### 6.4.2.1 Geology & Mineralisation

The Greenmount deposit is hosted by Mid Proterozoic graphitic and carbonaceous slates of the Answer Slate (Figure 16). The deposit lies within tens of metres of the contact with the calcareous and evaporitic metasediments of the Staveley Formation in the southern Marimo Basin. A diorite intrudes the sequence and is altered and veined but not mineralised. The area around Greenmount is particularly disjointed and structurally complex.

Late-stage brittle faults have fragmented the rocks and the earlier tight D2 folds.

Alteration and mineralisation are localised in or near to a 'flat' structural ramp that is sub-parallel to the formational boundary, within a reverse fault/shear regime. The veining and mineralisation were formed in a dominantly brittle to brittle-ductile regime.

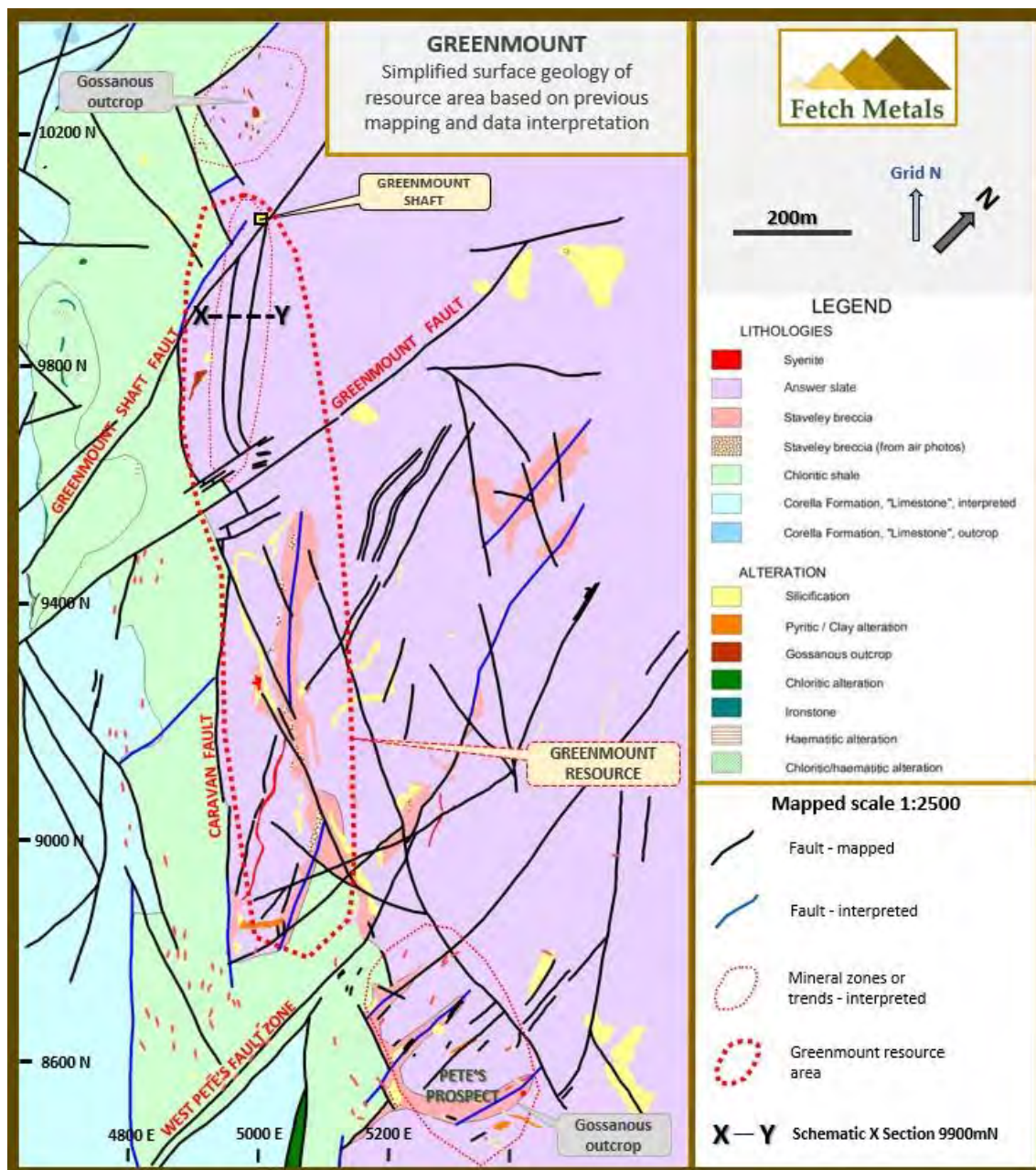


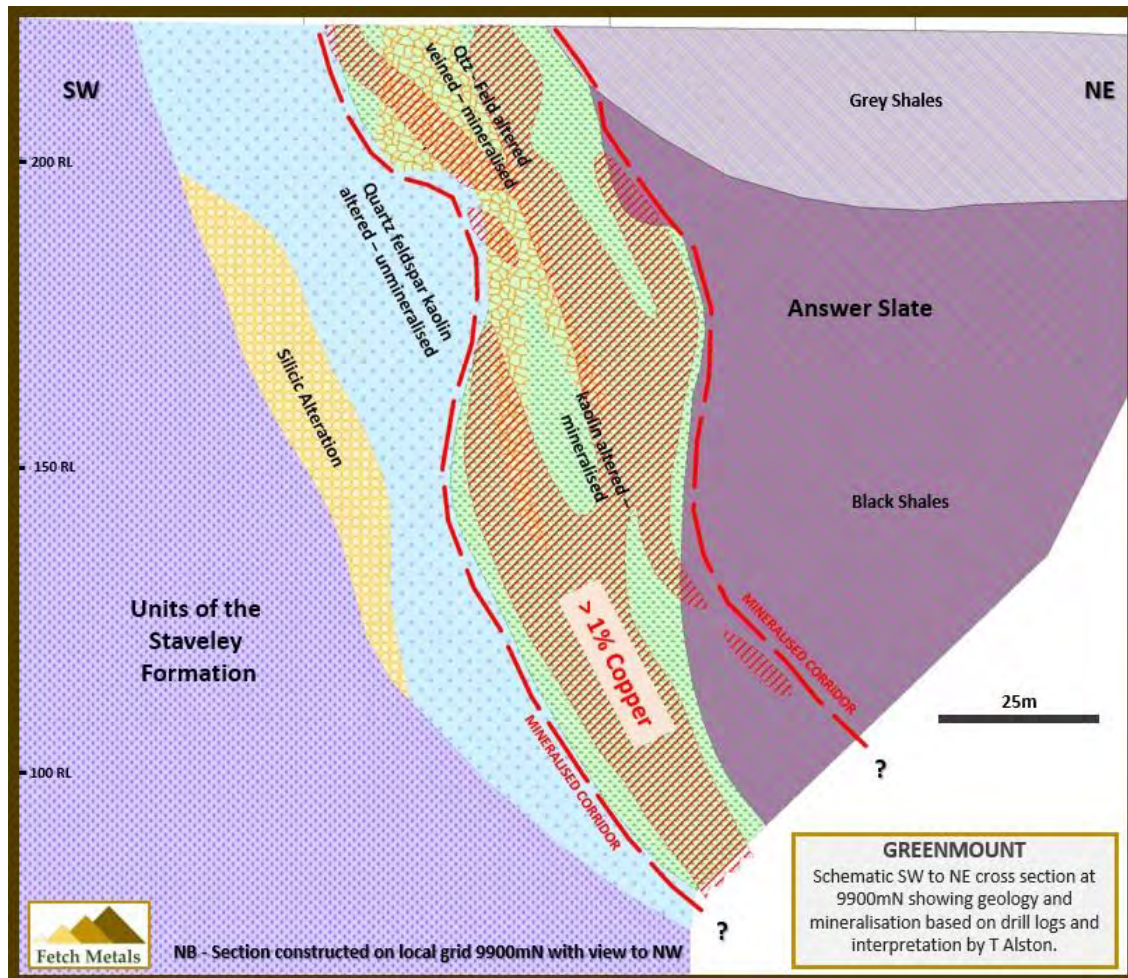
Figure 16: Interpretive Geology Map for the Greenmount Deposit

(source : Laing 2004)



This is best exemplified by Figure 17 which is a cross section that shows the complex relationship between structure, alteration and the mineralisation. These complexities have resulted from the deformation and shearing associated with the lithological contact between the Staveley Formation and the Answer Slate.

Copper, gold and cobalt mineralisation is associated with quartz+/-carbonate veining and breccia veining in a broad silicified and albitised alteration zone. This zone is sub parallel to the Staveley/Answer Slate contact which dips between 55 ° and 75 ° to the east. The mineralisation occurs mainly as veins in the Answer Slate, however, mineralised veins can also be found in the Staveley Formation. The veins form a three-dimensional stockwork and are seemingly related to NNW and ENE trending fault sets.



**Figure 17: Cross Section through the Greenmount Mineralisation**

(source: Krcmarov 1995)

The main sulphide species are pyrite, chalcopyrite, chalcocite, and covellite with lesser marcasite, cobaltite (main cobalt species with minor to trace carrolite) and rare sphalerite and pyrrhotite. The deposit also has significant secondary mineralisation in the form of Cu-oxy-hydroxide (e.g., malachite) and hydrous-Cu-silicates (e.g. chrysocolla). An example of the malachite mineralisation is included as Figure 18.





**Figure 18: Malachite Veining in Competent Rock (Hole GM12DD06 Met Hole 18m)**

Figure 19 shows what appears to be oxidised rock from weathering with relatively fresh 'remnant' pyrite (in the red box) from 88 to 89.6m downhole.



**Figure 19: Pyrite Veining in Oxidised Material (Hole GM12DD06 Met Hole 88.5m)**



Figure 20 gives an indication of the intensity of oxidation from 110m downhole.



**Figure 20: Completely Oxidised Material (Hole GM12DD06 Met Hole 110m)**

Copper as chalcopyrite is concentrated in the alteration zone and with quartz-feldspar veins in fresh rock below the base of oxidation. Cobalt mineralisation is more widespread and frequently occurs with quartz-pyrite and breccia veins above the hanging wall of the main alteration zone.

#### 6.4.2.2 Exploration and Mining History

Little is known of the early mining history at Greenmount. A shaft which was said to be 9m deep suggests old-timers located some high-grade copper mineralisation. Production is likely to be small and any records are potentially unreliable. Early mining at the turn of the last century generally only concentrated on the extraction of high grade ore.

Early exploration included work by the National Lead Company in 1954. The work comprised geological mapping and geochemical sampling and 1 diamond hole to 750 feet (228.6m). In 1963 the Carpentaria Exploration Company Pty Ltd (CEC) explored Greenmount and the region around it. Their work included more mapping and the completion of a RAB drilling program of 72 holes for 6,573 feet (2,003.5m).

Subsequent exploration campaigns at Greenmount included surveying, surface geochemical sampling, ground-based geophysics, mapping, trenching and the drilling of further RAB, RC and diamond holes. The work was initially carried out by Homestake Limited in joint venture with Valdora Minerals during the period 1988 to 1996. In 1996, Majestic Resources acquired Homestake's interest and completed an extensive exploration effort over the next three years. The work included further surface surveys, costeaning, structural mapping, the drilling of 61

RC holes for 6,589.5m and 5 diamond holes for a further 587.8m. Following that, they undertook a mining study.

Matrix Metals acquired the tenement from Majestic in 2000 and completed a further 41 RC holes for 3,206.5m, followed by 2 diamond holes for 140.4m. They also relogged drill chips and core and undertook their own geological mapping.

Further drilling was conducted in 2012 by QMC and intersected significant copper mineralisation as well as significant gold credits. The gold appeared to be primarily free gold and could potentially be extracted by gravity and/or gold leaching techniques. Drilling results indicated copper grades of between 2.4% to 5.7% between downhole depths of 70m to 155m. Deeper holes aiming to test down dip potential of the copper-gold mineralisation indicated significant grades of molybdenum up to 0.89%

Historic drilling completed to date at Greenmount amounts to some 250 holes (approximate) for 22,815m.

#### 6.4.2.3 Mineral Resources

Mineral Resource estimates (“MRE”) were completed by Golder Associates for QMC in 2013 and were reported under the 2012 JORC Code & Guidelines in 2013. The Mineral Resources were reported for a 0.2% copper cut-off (Table 8). In 2004 Hellman & Schofield (“H&S”), the forerunner to H&SC, completed resource estimates for the Greenmount deposit with Mineral Resources reported for a 0.5% Cu cut-off.

**Table 8: Mineral Resources for the Greenmount Deposit 2013**

Category	Mt	Copper %	Cu Kt	Cobalt ppm	Gold g/t
Measured	1.16	1.26	14.6	680	0.46
Indicated	7.72	0.75	57.7	560	0.30
Inferred	3.78	0.57	21.4	430	0.20
<b>Total MRE</b>	<b>12.66</b>	<b>0.74</b>	<b>93.8</b>	<b>530</b>	<b>0.28</b>

(from Golder’s report “131007\_Greenmount JORC Resource update.pdf”)

The following is quoted from the QMC Greenmount resource estimation report and provides some background to the current MRE. Similar resource strategies were applied to some of the other deposits mentioned in this section.

*“Golder Associates Pty Ltd estimated the Mineral Resources using all drilling available to 31 June 2013. The Mineral Resources are provided using a [0.2%] copper cut-off. Assaying of other elements for gold, silver and cobalt are less consistent in the older drilling. As a result, the estimates for these elements are less precise and not presented in the resource statement that is based on copper estimates only for resource classification. Deep weathering at Greenmount has resulted in transitional copper minerals persisting to the full depth of the resource with only remnant pods of fresh sulphide minerals occurring in places”.*

*“The estimated area was divided into two mineralisation styles for the higher grade alteration zone and lower grade unaltered zone. These were further subdivided into three faulted block systems which have relatively small lateral offsets. This [geological interpretation] constrains the high grade mineralisation into domains that have reasonable continuity, but which do thin or disappear in dip and strike extent”.*

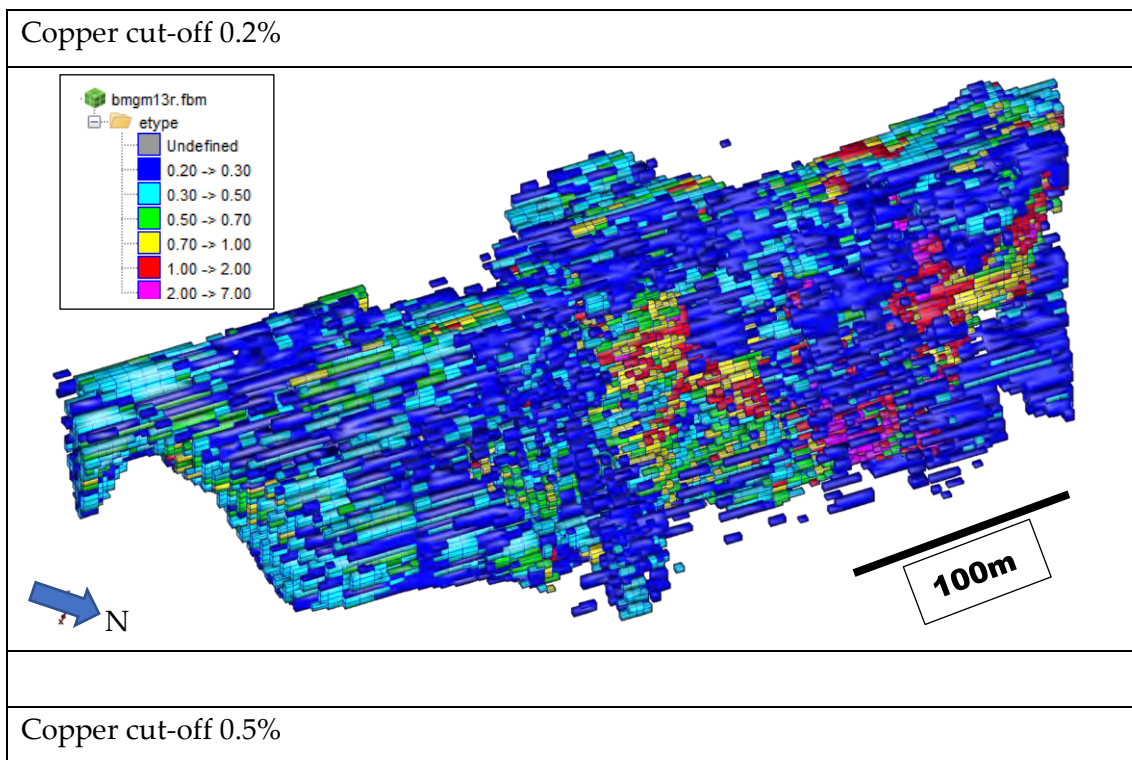
*“Greenmount has a higher grade zone of mineralisation with 71% of the copper metal in [the] 0.2% Cu cut-off resource estimate derived from the higher grade alteration domains. The alteration domains display reasonable continuity and define a discreet core to the resource”.*

*“The parent block size for Greenmount mineralisation is 5 x 6.25 x 5 m with some sub-blocking used for volume estimation purposes. Grade estimation is by median indicator kriging with post estimation adjustments for a selective mining unit size (SMU) of 3 x 5 x 2.5 m. This represents the smallest likely mining unit that could be implemented for open pit mining and the most selective practical resource estimate. Estimates were undertaken in a single search pass with up to 40 one metre composites allowed with octant searching”.*

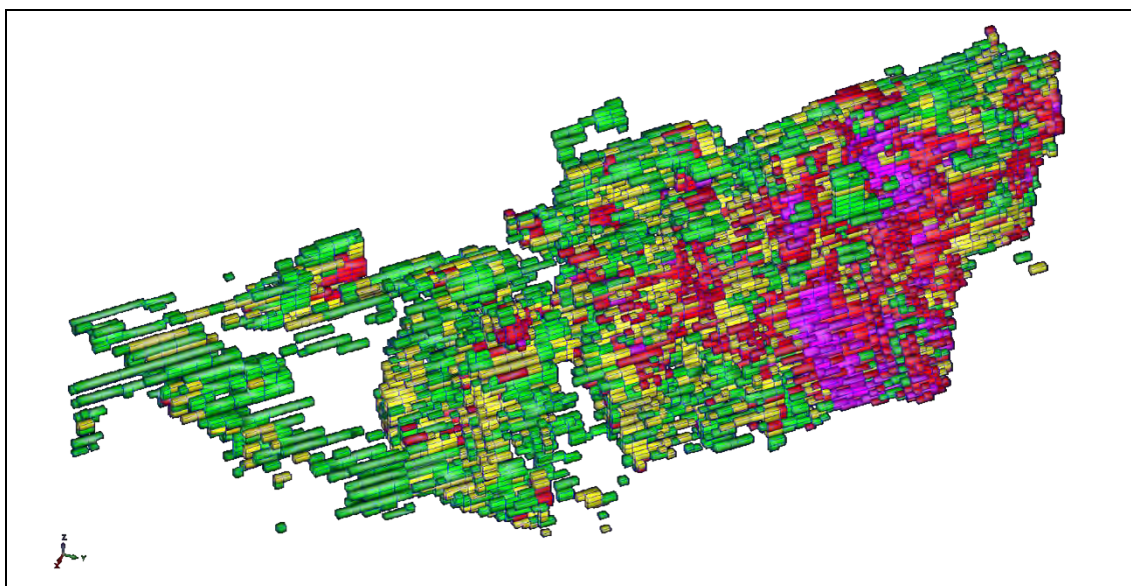
Default density values were used, which were based on “immersion in water” measuring methods, but it remains uncertain as to which actual immersion in water method was used. An account was made for the potential sample selection bias towards more competent core. There is no mention of whether oxide samples were waxed prior to immersion in water.

Classification of the Mineral Resources used defined shapes based on the amount of drilling.

Figure 21 shows the copper block distribution for the Greenmount deposit at a 0.2% and 0.5% copper cut-off.







**Figure 21: Copper Block Grade Distribution for the Greenmount Deposit**

*(view looking down to WSW)*

A comparison of H&S's Ordinary Kriged ("OK") and Multiple Indicator Kriged ("MIK") models and QMC's estimation results for a 0.5% Cu cut-off is given in Table 9. It shows that the latest QMC estimates have the highest grade for a smaller tonnage, with about a 5% increase in contained metal; it should be noted that the H&S model utilised slightly less drilling than the Golder estimate. The higher copper grade for the QMC estimates might be due to the median indicator kriging grade interpolation method that was employed and perhaps over-constraining of the composite data with the use of a 0.2% Cu mineral wireframe. The latter point is more relevant for the reported Mineral Resources at a 0.2% Cu cut-off.

**Table 9: Comparison of Mineral Resources for the Greenmount Deposit**

QMC	mIK	0.5% Cu cut-off	
	Mt	Cu %	Cu Kt
Measured	0.84	1.61	13.5
Indicated	3.31	1.31	43.4
Inferred	1.16	1.1	12.8
<b>Total</b>	<b>5.31</b>	<b>1.31</b>	<b>69.6</b>
H&S	OK	0.5% Cu cut-off	
	Mt	Cu %	Cu Kt
Measured	2.12	1.06	22.5
Indicated	2.79	0.95	26.5
Inferred	2.03	0.94	19.2
<b>Total</b>	<b>6.95</b>	<b>0.98</b>	<b>68.2</b>
H&S	MIK	0.5% Cu cut-off	
	Mt	Cu %	Cu Kt
Measured	2.26	1.15	26.1
Indicated	2.04	1.14	23.2



Inferred	1.59	1.08	17.2
<b>Total</b>	<b>5.89</b>	<b>1.13</b>	<b>66.5</b>

(mIK = median Indicator Kriging; OK – Ordinary Kriging; MIK = Multiple Indicator Kriging)

Overall, the comparison of the models indicates relatively the same amount of contained copper metal. Differences occur in tonnage/grade and in the distribution of the resource classification although the latter is really a function of the classification methodology i.e. data density versus defined shape. The differences between the models are in the 10% range which is appropriate for the resource classification and can provide some level of confidence in the estimates.

There are no estimates for gold and cobalt in the comparison.

No other issues are noted in the QMC resource report.

The median indicator kriging method produces recoverable resources but just uses the 50-percentile data to produce one variogram and models all grade bins using that one variogram. In a way it is potentially like OK modelling, except the high grades are given an increased level of continuity based on the much likelier longer grade continuity of the lower grade 50 percentile data compared to the higher percentile grades. The result of using this method is likely to be some overstatement of grade or ‘over-stretching’ of high grades. To offset this, it appears that a shortened search ellipse was used for any high-grade areas. However, OK may not be too bad an option looking at the detailed amount of drilling for some of the deposits and the check models completed by H&S for Greenmount & Kuridala (see below).

#### 6.4.2.4 Exploration Opportunities

There are two components to the exploration opportunities for Greenmount. The first is the brownfields opportunity which aims to upgrade and possibly extend the current Mineral Resources with a series of validation and exploratory holes. This might include locating immediate satellite mineralisation to the main body of mineralisation. An initial focus is to follow up the anomalous Cu results from drillhole GRC21 which returned 8m @ 0.96% Cu, 250m SE of the existing resource. The second opportunity is to move slightly further afield and test areas of favourable geoscientific data e.g. coincident copper surface geochemistry and structural/lithological settings such as those at Olmeh, Pete’s Prospect and Mount Leone.

Figure 22 shows the areas under consideration for exploration follow up. The figure has the Answer Slate displayed over the RTP airborne magnetics in conjunction with the prospective copper corridors and historical drilling

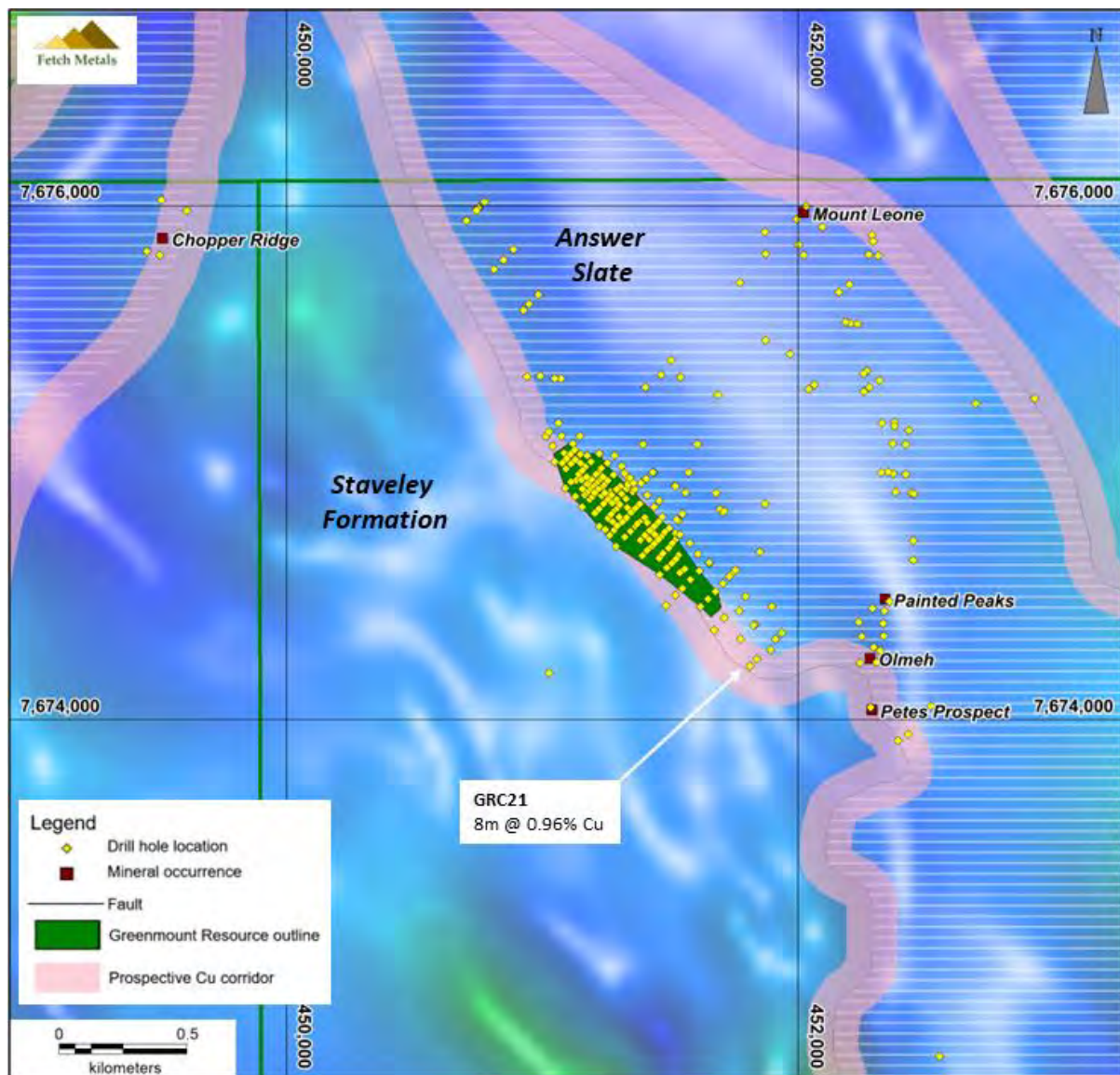


Figure 22: Exploration Target Map for the Greenmount Deposit Area

### 6.4.3 Kuridala

The Kuridala deposit lies 65km south of Cloncurry and is within mining lease ML90081. ML90081 allows open pit mining for oxide material, by Fetch, down to a nominal depth of 100m due to inherited mining lease conditions. Chinova has the rights below the 100m level. The deposit has also been known as the Hampden deposit.

#### 6.4.3.1 Geology & Mineralisation

The Kuridala deposit is hosted in the Hampden Slate and New Hope Sandstone Member of the Kuridala Group. The Kuridala and Soldiers Cap Groups, together, are formally recognised as the Maronan Supergroup.

The main mineralisation is hosted by a folded and extensively faulted sequence of metavolcanics, metadolerites, carbonaceous metasediments and metasiltstones (Figure 23). The stratigraphy is regionally metamorphosed to lower amphibolite facies.

The deposit lies on the eastern limb of the Kuridala Syncline, one of a number of significant N-S trending regional fold structures of D2 age associated with the Maronan Supergroup. The syncline plunges gently southwards in the mine area but varies locally from 20-30°S to about 10-20°N.

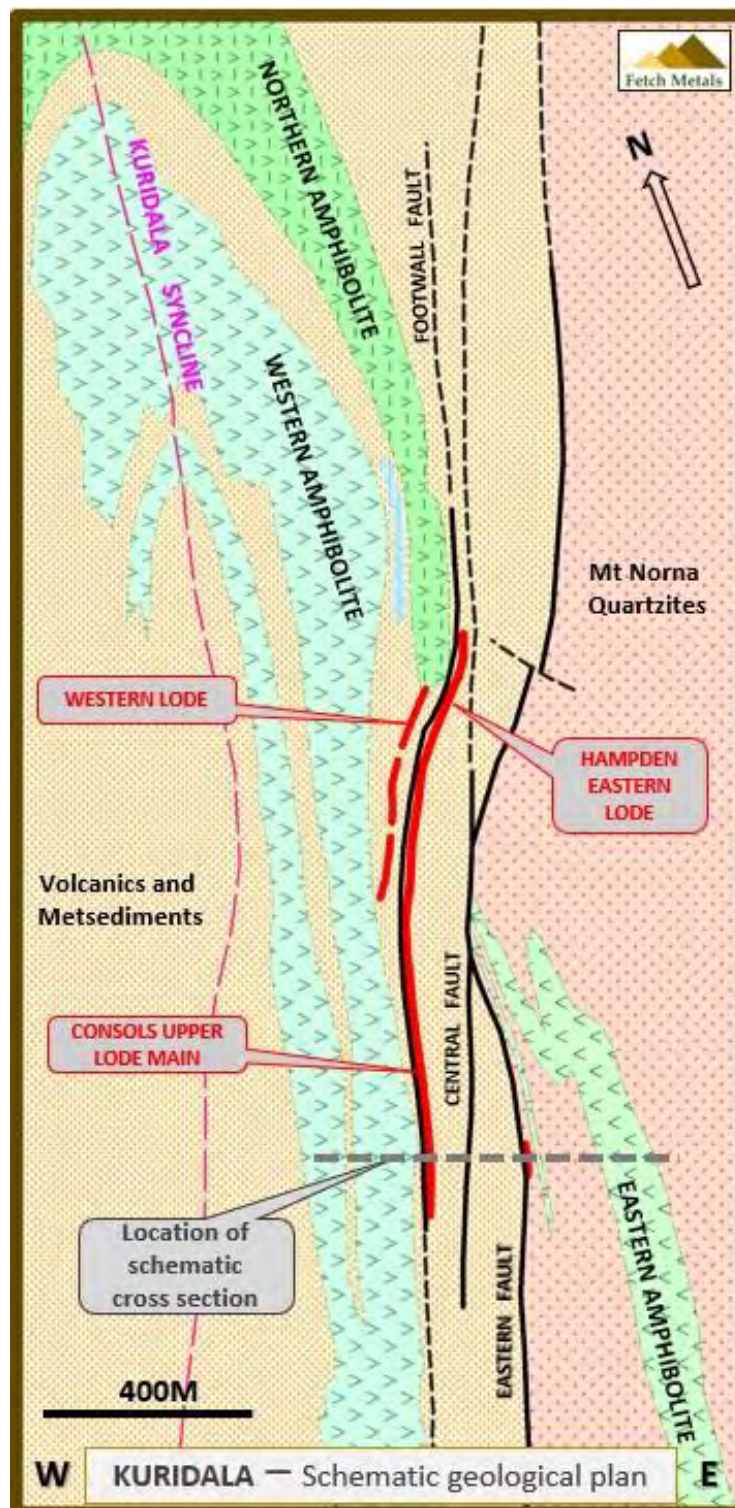


Figure 23: Geology of the Kuridala Area

The stratigraphy in the mine area includes variably altered shale, siltstone, quartzite and carbonaceous slate in the mineralised horizon. Slate and amphibolite form the footwall and



predominantly black shale and quartzite make up the hanging wall (Figure 24). Bedding dips average between  $90^\circ$  and  $70^\circ$  to the east and the axial cleavage (S2) averages  $70^\circ$  to the east. Parasitic folding on a significant scale occurs in two locations, with the first being parallel to the axis of the Kuridala Synform in the hanging wall metasediments and amphibolite. The second occurs within a discrete zone of pervasive alteration and mineralisation within the main Hampden Fault Zone referred to as the Hampden Mineralised Zone (Laing, 1986).

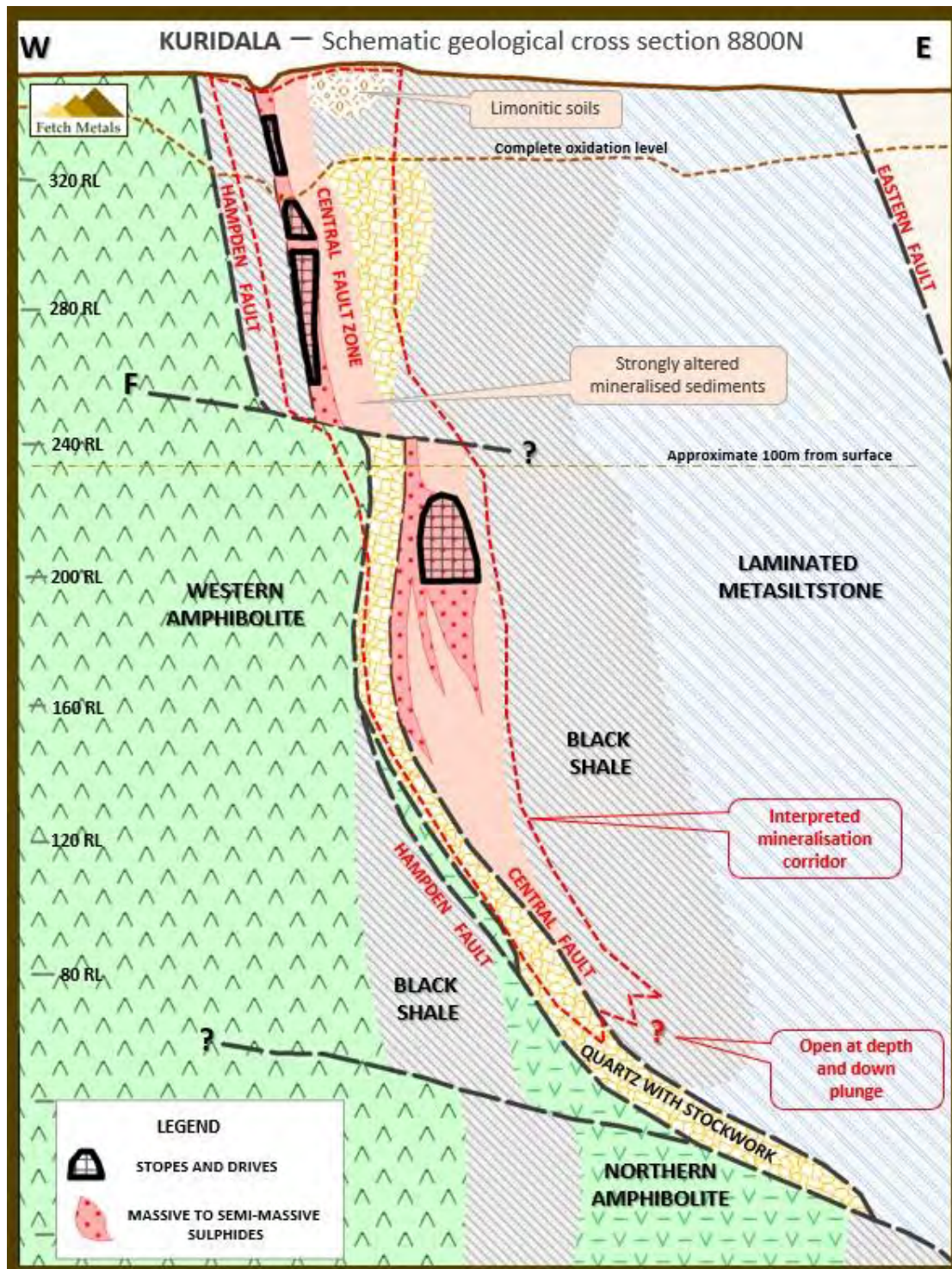


Figure 24: Interpreted Geological Cross Section of the Kuridala Deposit



Copper mineralisation for the Kuridala deposit is entirely structurally controlled. It formed as the last brittle phase in the structural evolution of the Kuridala Syncline, in a classic dilational jog on the Hampden Fault. The mineralisation is hosted in two vein types within the Hampden Mineralised Zone, as massive sulphide occurring predominately in breccia veins and stockwork sulphide located in the hanging wall of the breccia veins.

On the eastern side of the above zone the carbonaceous slate is stockworked with quartz, quartz-kfeldspar and carbonate veins and coincides with a well-defined zone of pervasive alteration. This alteration comprises silicification and minor carbonate alteration of the carbonaceous slate, clearly as a result of replacement emanating from the veins of the stockwork. The eastern boundary of the pervasive alteration zone is irregular and transgresses bedding in the slate. In outcrop the hanging wall alteration zone is strongly bleached and varies from a hard, siliceous rock to a soft kaolinitic or carbonate-altered rock. The alteration is not uniformly pervasive, as areas of unaltered carbonaceous and/or laminated metasilstone can be seen within the general alteration zone.

The oxide zone is well developed at Kuridala and varies between 20 and 30m in depth with the principal copper oxide ore minerals being malachite, chrysocolla and chalcocite. A supergene (transition) mineralised zone is also present with secondary chalcocite being the dominant copper sulphide with lesser amounts of bornite, cubanite and covellite. The supergene zone grades into the primary mineral zone where chalcopyrite is the main copper species and pyrite is the main sulphide gangue mineral.

#### **6.4.3.2 Exploration and Mining History**

The deposit is a well-known locality as it was previously mined for both copper and gold between 1898 and 1921. Combined 'ore' production of 193Kt (for 13,615t of copper and 11,760 oz. of gold) is reported although unreported production of up to 300Kt has been postulated. Hampden Cloncurry Copper Mines was formed in 1906 and held the northern end of the deposit commencing smelting operations in 1911. The Hampden smelter treated a total of 685Kt of ore from Kuridala for a production of 51Kt of copper, 20Koz of gold and 381Koz of silver. Figure 25 is a scenic shot of the smelter stacks and part of one of the open pits.



**Figure 25: Kuridala Stacks and Open Pit**

MIM started exploration in 1948 around the Kuridala deposit by drilling three holes below the southern part of the deposit below the Consols Lode. This work was followed up in 1953 by Broken Hill South with the drilling of an additional 3 holes. There appears to have been no significant work conducted until Metana Minerals N.L. in 1971 drilled 2 holes into the Consols Lode. In 1973-1976 Hampden Kuridala Mines Pty Ltd dewatered the mine and direct shipped ore to the MIM smelter in Mt Isa. Sporadic exploration continued until 1990, when detailed exploration drilling by Metana in JV with Uranerz culminated in a feasibility study for mining. In 1995 Majestic Resources N.L. entered into an agreement to acquire rights to the top 100m of the deposit. Majestic drilled 50 RC holes and lodged an ML application, and then was acquired by Matrix Metals in 2000. In 2006 Matrix drilled 22 DDH holes for a total of 1199m to aid in the metallurgical testing of the deposit. QMC completed 4 RC holes for 252m in 2014 focussed on strike extensions to the south of the Mineral Resource. Chinova most recently completed drilling in 2017 and 2018, totalling 6 RC holes for 61m, and 2 DDH holes for 372.4.

#### **6.4.3.3 Mineral Resources**

MRE were completed by Golder Associates for QMC in 2010 and were reported initially under the 2004 JORC Code & Guidelines. The Mineral Resources were then reported in 2017 under the 2012 JORC Code & Guidelines for a 0.2% copper cut-off (Table 10). In 2004 H&S completed resource estimates for the Kuridala deposit, for the then owner Matrix Metals, with the reported Mineral Resources having a 0.5% Cu cut-off.

Table 10: Mineral Resources for the Kuridala Deposit

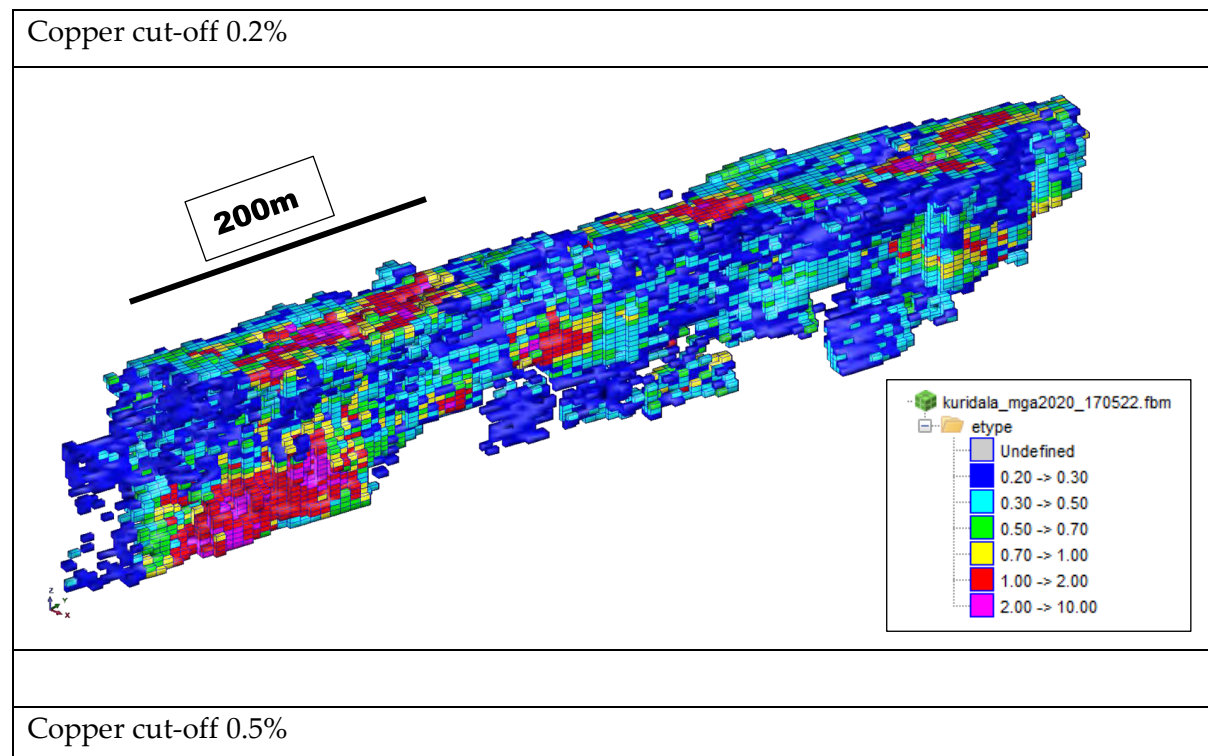
Category	Mt	Copper %	Cu Kt	Cobalt ppm	Gold g/t
Measured	2.49	0.90	22.4	200	0.16
Indicated	3.04	0.84	25.5	240	0.24
Inferred	1.65	0.73	12.0	270	0.22
<b>Total MRE</b>	<b>7.18</b>	<b>0.84</b>	<b>60.3</b>	<b>230</b>	<b>0.21</b>

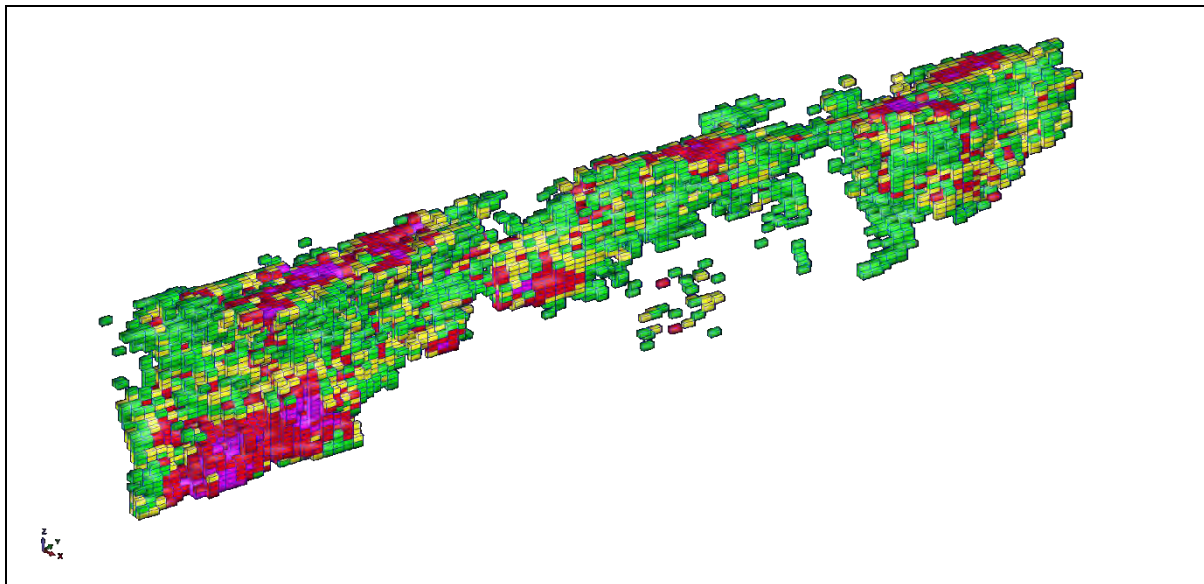
(from QMC's report "170831\_Kuridala JORC resource restatement.pdf")

The published MRE in 2017 "entailed a brief review of the previous work and compliance to the JORC Code (2012) and the compilation of the additional information not supplied in the original announcement in 2004 and the subsequent update in 2010, which was completed [by Golder] under the JORC Code (2004)". It should also be noted that "cobalt and gold assays are only partially available and should only be considered **as indicative** and is only included for consistency in reporting QMC projects. In addition, current copper heap leach processing options being considered do not recover cobalt and gold."

It was also stated that "there has been no additional drilling at Kuridala since 2006 that would affect the Mineral Resource hence the 2010 update is still current".

Figure 26 shows the copper block grade distribution for the Kuridala deposit at a 0.2% and 0.5% copper cut-off.





**Figure 26: Copper Block Grade Distribution for the Kuridala Deposit**

*(view looking down to NW)*

The block model was constructed with 5m by 10m by 5m parent blocks. Geological domains and unfolding were established to reflect the structural orientation of the mineralisation with an overall dip of 90° to 70° to the east. Mine workings and stope models were used to account for previous mining.

Mineral domains were defined using a 0.2% Cu cut-off. There is a slight risk of over-constraining of the composite data leading to a potential overstatement of resource grade by using the 0.2% copper cut-off and reporting the MRE at a 0.2% copper cut-off. The 0.2% copper cut-off wireframe is probably more acceptable for reporting Mineral Resources at a 0.5% copper cut-off.

Estimation by Golder used the median indicator kriging technique with a change of volume support to represent the expected mining selectivity. The change of support was supported by a conditional simulation study. Matrix geologists undertook the geological interpretations and Golder assessed the geological zones and incorporated them into the geological control during grade estimation to reflect the geological understanding provided by Matrix. The recoverable Mineral Resources estimated by Golder was for a 3 by 5 by 2.5m (X, Y, Z dimensions) mining selectivity which in turn was based on recommendations made by Matrix in 2004. Grade interpolation was completed using 1m sample composites with a single estimation pass with a search radius of 40m by 40m by 10m and a minimum 6 composites and a maximum of 7 composites per octant.

Mineral Resource classification was applied to each block on the basis of the number of drill holes and average composite distance used during block grade estimation. Measured and Indicated classification was limited to the principal mineralisation domains. Classification was downgraded when significant stoping was present to reflect the greater uncertainty of areas near historic workings.

Default densities were used and seemed to be based on a limited amount of data with the density determination method unclear.



A comparison of H&S's OK and MIK models and QMC's estimation results for a 0.5% Cu cut-off is given in Table 11. It shows that the latest QMC estimates have the highest grade for a much smaller tonnage, with a 5% drop in contained metal. It is worth noting that copper grade increases with decreasing confidence for the QMC Measured and Indicated Resources as compared to the opposite for the H&S MIK model. The MIK model is considered as the preferred H&SC model but does depend on the quality of the grade control technique with respect to mining to achieve the level of selectivity used in the MIK model.

**Table 11: Comparison of Mineral Resources for the Kuridala Deposit**

<b>QMC</b>	<b>mIK</b>	<b>0.5% Cu cut-off</b>	
	<b>Mt</b>	<b>Cu %</b>	<b>Cu Kt</b>
Measured	1.25	1.08	13.5
Indicated	1.52	1.33	20.2
Inferred	0.73	1.23	9
<b>Total</b>	<b>3.5</b>	<b>1.35</b>	<b>47.3</b>
<b>H&amp;S</b>	<b>OK</b>	<b>0.5% Cu cut-off</b>	
	<b>Mt</b>	<b>Cu %</b>	<b>Cu Kt</b>
Measured	1.64	1.26	20.6
Indicated	1.76	1.09	19.3
Inferred	1.09	1.08	11.7
<b>Total</b>	<b>4.49</b>	<b>1.15</b>	<b>51.6</b>
<b>H&amp;SC</b>	<b>MIK</b>	<b>0.5% Cu cut-off</b>	
	<b>Mt</b>	<b>Cu %</b>	<b>Cu Kt</b>
Measured	1.62	1.33	21.5
Indicated	1.51	1.18	17.8
Inferred	0.95	1.13	10.8
<b>Total</b>	<b>4.09</b>	<b>1.23</b>	<b>50.1</b>

(mIK = median Indicator Kriging; OK – Ordinary Kriging; MIK = Multiple Indicator Kriging)

Overall, the comparison of the models indicates relatively the same amount of contained metal. Differences occur in tonnage/grade and in the distribution of the resource classification although the latter is a function of the different search ellipses used. The differences between the models are in the 10% range which is appropriate for the resource classification and can provide some level of confidence in the estimates.

A potential issue with the mineralisation may occur based on the reference made in the QMC report to potential washing away of secondary, sooty chalcocite with some of the diamond drilling. Investigation of this issue, along with scrutiny of the acid digest technique used for analysis, was completed by previous operators but the conclusions are unclear in their consistency, with suggestions of a 1 to 3% impact on the MRE. Further investigation into the extent of the problem is recommended.

The depth limit to the MRE is 100m which is a condition of the Mining Lease, with below 100m held by Chinova as an Exploration Permit. It is uncertain as to whether the whole 0-

100m depth is comprised of material suitable for heap leach extraction of copper. There is mention of decreasing recoveries with depth.

#### **6.4.3.4 Exploration Opportunities**

There are two components to the exploration opportunities for Kuridala. The first is the brownfields opportunity which aims to upgrade and possibly extend the current Mineral Resources with a series of validation and exploratory holes. This might include locating immediate satellite mineralisation to the main body of mineralisation. The second opportunity is to move slightly further afield and test areas of favourable geoscientific data e.g. coincident copper surface geochemistry and structural/lithological settings. Specific brownfields examples include:

1. Along strike to the north from the Mineral Resources where limited exploratory work has been completed.
2. South of the Mineral Resources, the surface is dominated by residual and transported soil with little or no rock exposure. Limited scout drilling, surface geochemistry and geophysical surveys in this region have recorded encouraging results with drill hole HRCD006, located 600m SW of the deposit intersecting 6m at 1.44% Cu from 6m. Another drill hole HRC060 located 450m to the SW returned 8m at 1.07% Cu from 10m.

The potential for an undiscovered mineralised structure in this area is considered high.

Figure 27 shows the areas under consideration for immediate exploration follow up.

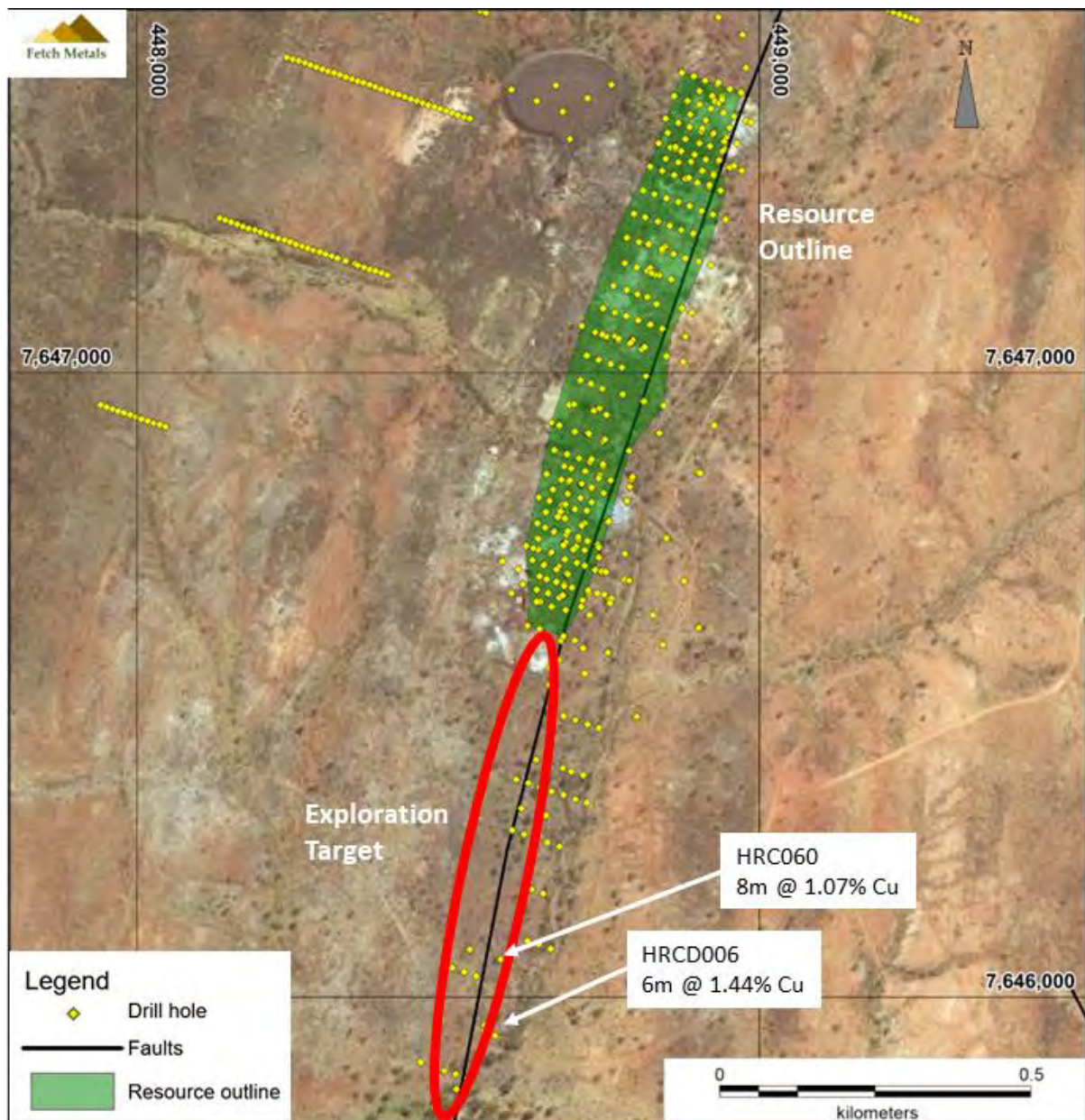


Figure 27: Exploration Target Map for the Kuridala Deposit Area

#### 6.4.4 Young Australian

The Young Australian deposit lies 65km south of Cloncurry.

The deposit consists of four mining leases (ML7511, ML7512, ML90084 and ML90099) and surrounding six sub-blocks within EPM18912 which is held by Chinova Resources. Fetch has the exclusive rights to explore for mineralisation until May 2025.

##### 6.4.4.1 Geology & Mineralisation

The Young Australian copper deposit is hosted in the Proterozoic Answer Slate, which comprises siltstone, slate sandstone, chert and lithic greywacke. The Answer Slate conformably overlies the Mitakoodi Quartzite, which consists of quartzite, sandstone and

siltstone. Both units are altered (hornfelsed) by the Wimberu Granite, which is exposed west of the mine area.

Deep weathering and a strong regional cleavage have made identification of lithologies associated with the deposit difficult. Around the mine, the country rock consists of quartz-sericite schist with an average strike of  $030^{\circ}$  and a dip that is vertical or steeply dipping to the east (MIM, 1967). Conformable with the schist are units of the Answer Slate. These host the copper mineralisation, which is commonly localised around a series of faults represented by anatomising, discontinuous quartz veins that strike  $030^{\circ}$  and dip steeply east-southeast. The zones of quartz veins were up to 6m wide at the surface (before mining) and up to 12m wide in some of the diamond holes (MIM, 1967).

A quartz-muscovite dyke has been mapped in the mine area. It is up to 1m wide, trends  $165^{\circ}$ , and dips steeply north. The dyke follows the same trend as a major joint direction in the Answer Slate. Minor strike faulting has caused dislocation of the dyke in several places in the open cut (MIM, 1967).

The base of oxidation is 30m below surface, with a leached zone extending to around 60m depth.

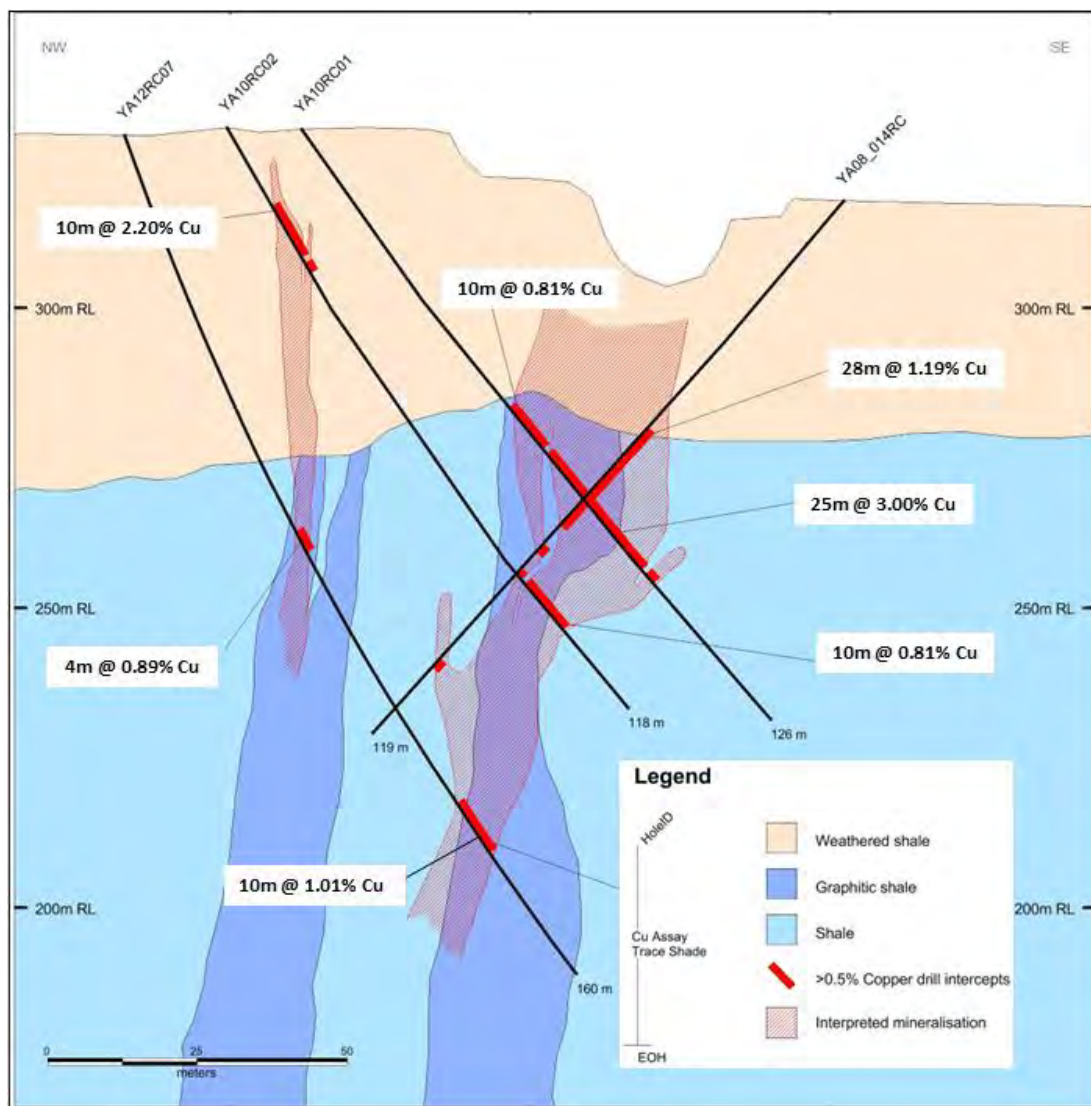


Figure 28: Interpreted Cross Section for the Young Australian Deposit



Sulphide mineralisation comprising pyrite and chalcopyrite was intersected in drill holes at a depth of about 70-80m. Minerals reported in the oxide and leached zones are malachite; chrysocolla and cuprite, while in the secondary enrichment zone, sooty chalcocite, blue chalcocite, cuprite and minor chalcopyrite are common.

#### 6.4.4.2 Exploration and Mining History

The Young Australian deposit was first mined in 1908 as the Monitor Copper Mine with 66 tonnes of ore taken from a 12m shaft dug by J.C. Ball at a probable grade of 30-40% Cu. Additional shafts were sunk to 10m and then 23m with some minor drives, between 1912 to 1917 with records indicating 25 tonnes ore averaging at one point 28% Cu. From 1941–1961 970 tonnes of ore were produced by Tunney Bros at 8% Cu and sold to MIM.

The Young Australian Mine was sold to MIM in 1961, which resulted in the definition of a Mineral Resource which was then extracted by an open pit method in the late 1960s (Figure 29). Production amounted to 175,921 tonnes at a copper grade of 2.2%. MIM relinquished the leases in 1982, and the final ore removed was a tribute parcel of 5,000 tonnes from the southern portion of the open pit by A.W O’Keefe in 1998.



**Figure 29: Young Australian Open Pits**

*(view looking northeast)*

Chinova and QMC drilled on the EPM and ML between 2008 and 2015 which resulted in the announcement of a new Mineral Resource.

#### 6.4.4.3 Mineral Resources

The current resource estimate (Table 12) was completed in July 2016 by John Horton of ResEval and is essentially, incorporating extra drilling from 2012 and 2015. Dr Guojian Xu, as a full-time employee of QMC, took responsibility for the Exploration Data.

**Table 12: Mineral Resources for the Young Australian Deposit**

Category	Mt	Copper %	Cu Kt
Indicated	2.2	0.93	20.5
Inferred	2.9	0.68	19.7
<b>Total MRE</b>	<b>5.1</b>	<b>0.79</b>	<b>40.3</b>

(from ResEval report “160724\_Young Australian JORC resource report.pdf)

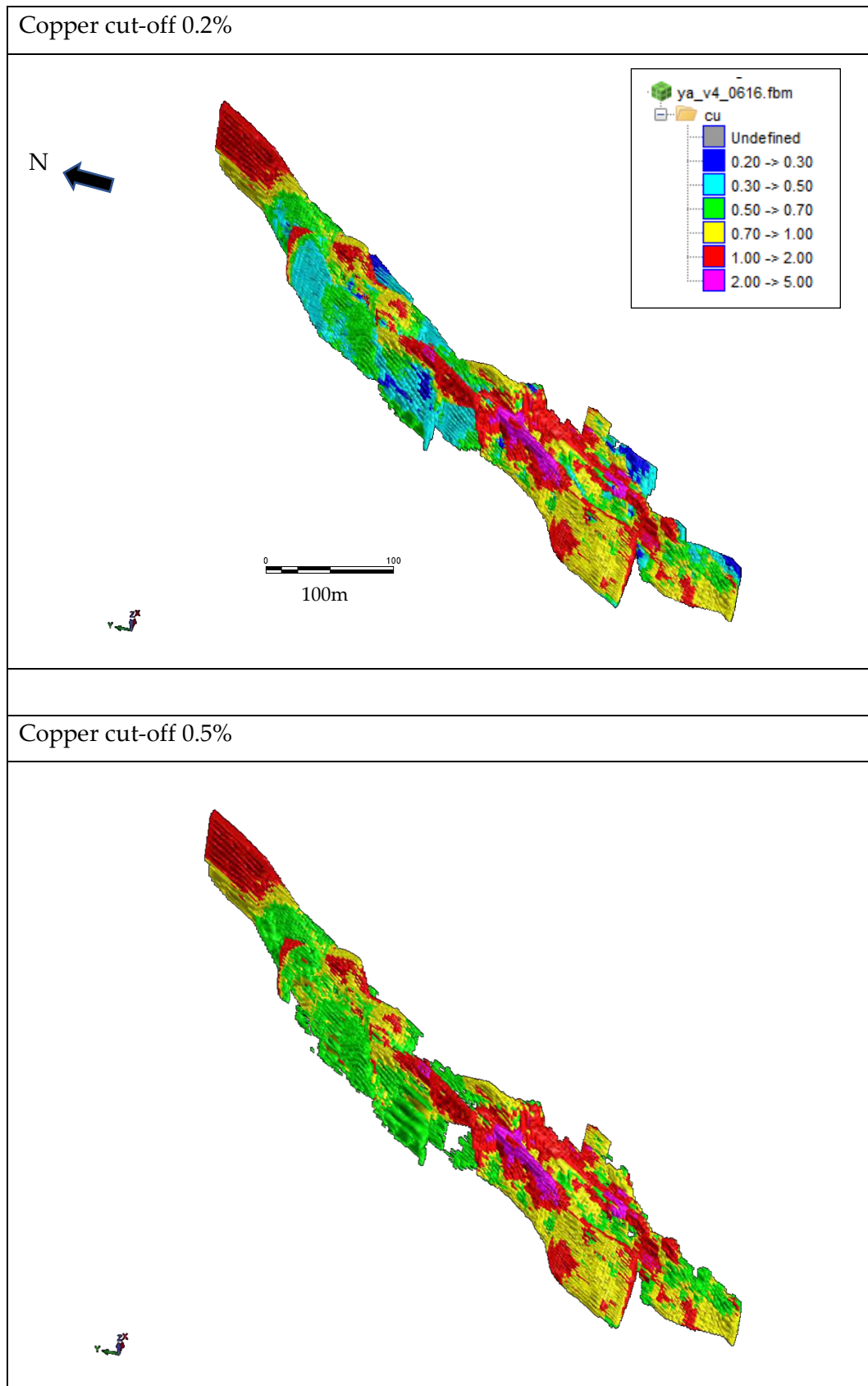
Three mineral domains were wireframed at a nominal 0.2% Cu cut-off, which might be considered inappropriate for reporting Mineral Resources at 0.2% Cu i.e. a risk of over-constraining the composite data for grade interpolation.

Grade interpolation used 2m composites with length weighting for a rotated (by 37°) block size of 10m by 5m by 5m with sub-blocking to 5m by 1.25m by 1.25m.

A review by ResEval of the previous estimation parameters indicated many inconsistencies such that it was decided to simplify the process by using the inverse distance squared technique with a 1:10 flattening anisotropy. This incorporated a 3-pass search strategy beginning with a large 50m by 50m by 15m search. The minimum number of data was three which is acceptable for the classification of the Mineral Resources as they were 2m composites derived from generally 1m sampling.

A single default density value, determined in an earlier resource estimate from drillcore (measuring method unknown), was used for reporting tonnages. This value of 2.73t/m<sup>3</sup> might be considered as a bit high as some of the mineralisation comprises oxidised copper species e.g. malachite and presumably is hosted by oxidised rocks.

Figure 30 shows the copper block distribution for the Young Australian deposit at a 0.2% and 0.5% copper cut-off.



**Figure 30: Copper Block Grade Distribution for the Young Australian Deposit**

*(view looking down to NE)*

There is no H & S model to compare with.

The Mineral Resources are considered reasonable for the classification of the deposit.

#### 6.4.4.4 Exploration Opportunities

There are two components to the exploration opportunities for the Young Australian tenement. The first is the brownfields opportunity which aims to upgrade and possibly extend the current Mineral Resources with a series of validation and exploratory holes. This might include locating immediate satellite mineralisation to the main body of mineralisation. The second opportunity is to move slightly further afield and test areas of favourable geoscientific data e.g. coincident copper surface geochemistry and structural/lithological settings. Specific examples include:

1. The Young Australian deposit is open along strike to both NE and SW.
2. In 2015 QMC discovered the Tank Hill prospect which has an anomalous strike length of 1km and is a parallel structure, with some 300m of separation, to the Young Australian Mineral Resource.

Figure 31 shows the areas under consideration for exploration follow up at the Young Australian deposit.

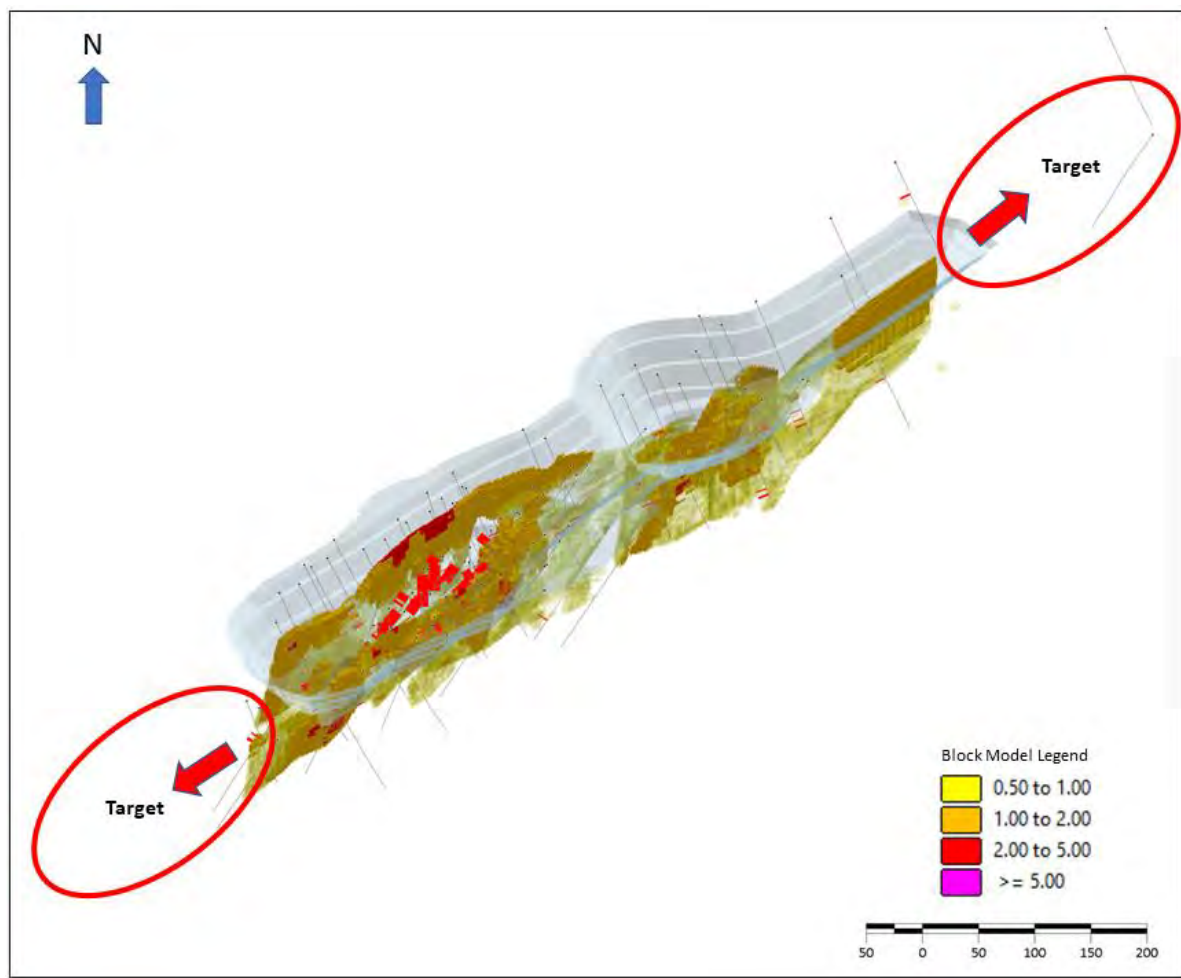


Figure 31: Exploration Target Map for the Young Australian Deposit Area



### 6.4.5 Mt McCabe

The Mt McCabe deposit lies 40km south of Cloncurry, within ML90082, and covers an area of 273ha. Mt McCabe is located 10km west of the Greenmount deposit.

#### 6.4.5.1 Geology & Mineralisation

The Mt. McCabe copper-cobalt deposit is located near the south-western flank of the Marimo basin. The deposit is hosted within the Mid Proterozoic Staveley Formation and Answer Slate (Figure 32). The Staveley Formation consists of various arenaceous rocks inter-bedded with phyllite and pyritic siltstone, whilst the Answer Slate consists of variably carbonaceous grey and black slate, interbedded siltstone and subordinate arenite, phyllite, and chert.

Both the Staveley Formation and the Answer Slate have been regionally metamorphosed to greenschist facies and are both faulted throughout.

Three metasomatic types of alteration have been identified at Mt McCabe, namely ironstone (peripheral to the breccia pipe), chlorite (within the breccia pipe) and silicification (mainly peripheral in late reactivated faults). The Cu-Co mineralisation is spatially associated with the chlorite metasomatism.

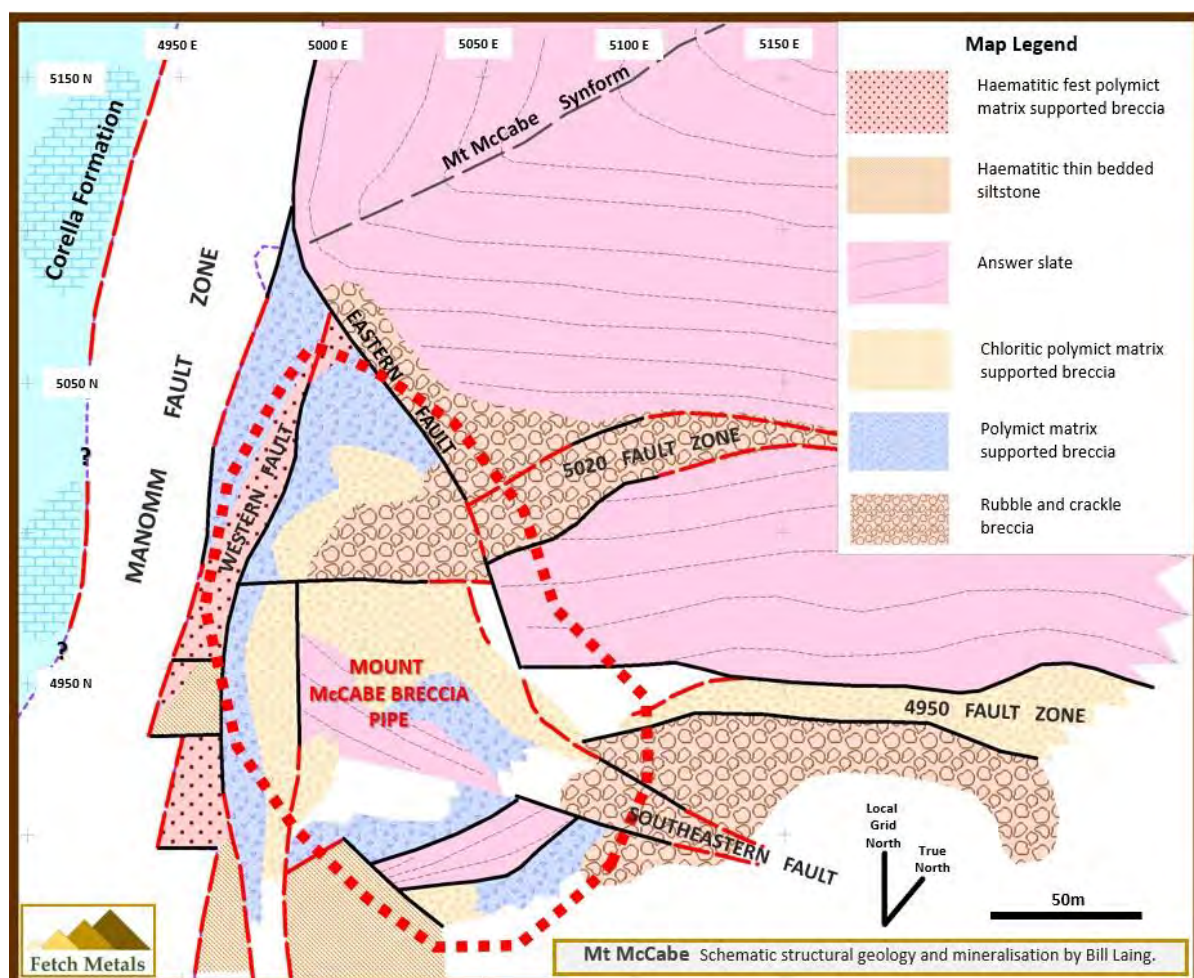


Figure 32: Geology Map of the Mt McCabe Area



A large discordant breccia (pipe) occurs near Mt McCabe which contains variably hematitic lenses throughout (Figure 33).



**Figure 33: Examples of Breccia Pipe Material from the Mt McCabe Deposit**

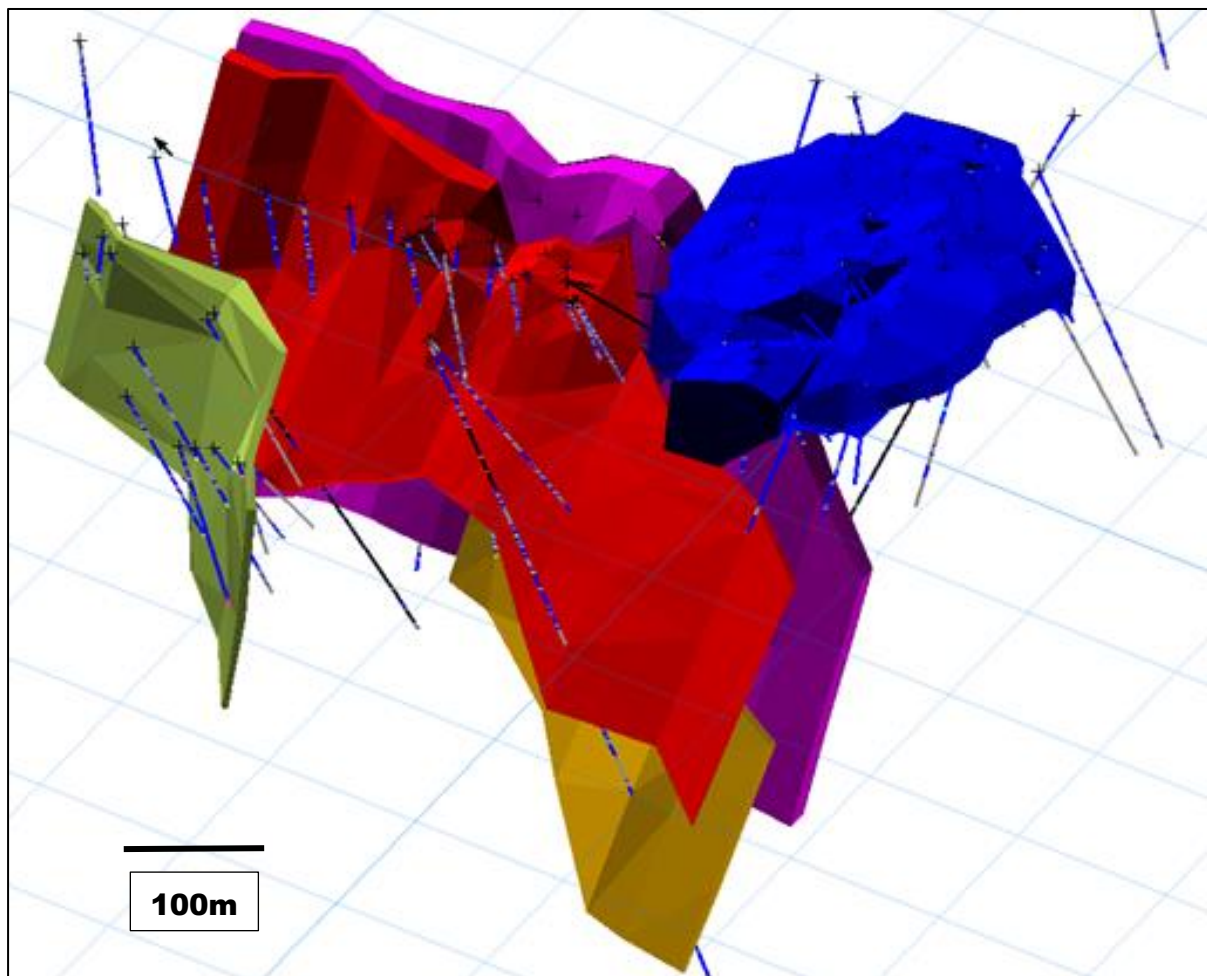
Detailed mapping by Majestic and Laing Exploration Pty Ltd has suggested that the breccia pipe formed at the intersection of two principal fault sets locally known as the Manomm Fault



Set (NNW strike) and the White Range Fault Set (ENE strike). The Manomm Fault is related to the Happy Valley Fault which is a northern manifestation of the Mt Dore Fault Zone, a major north-south crustal structure with at least 130 kilometres of strike. A number of major copper-gold deposits in the EFB are associated with the Mt Dore Fault Zone.

The deposit comprises the breccia pipe (in blue) and tabular fault-related lodes (Figure 34). The mineralisation associated with the breccia pipe is open at depth while the tabular fault lodes are also open at depth and along strike to the north and east. The controlling faults to the Mt McCabe mineralisation are steep to vertical and the breccia pipe is similarly oriented. The pipe lies on a major contact between the Staveley Formation on its south and west with the majority within the Answer Slate on its north and east.

Copper mineralisation occurs within and near the margins of the locally extensive hematite-rich breccia.



**Figure 34: Copper Mineral Lodes for the Mt McCabe Deposit**

#### **6.4.5.2 Exploration and Mining History**

The Mt McCabe deposit (Figure 35) was discovered in 1906 and mined in 1907 although production figures are uncertain. Open pit mining by Amdex Mining in the 1980s produced 10Kt ore grading 4.5% Cu.



Historic exploration commenced with CEC (now Glencore) in 1963 and continued with VAM NL in 1970. The latter completed limited drilling of 4 holes, but the data is poorly documented. Percussion drilling was completed in 1975 by Amdex Mining Ltd and by Cyprus from 1991. Majestic Resources completed a more extensive drilling program in 1994 which included 4,345m of RC and 309m of DD drilling from 6 holes, culminating in a MRE that was used in a 1999 Feasibility Study.

The current Mineral Resource was originally estimated by Matrix Metals in 2005/6, however QMC engaged Golder Associates to update the resource estimate in 2010.

The Mt McCabe exploration database includes 231 drill holes for a total of 23,470m.



**Figure 35: Mt McCabe Deposit**

#### **6.4.5.3 Mineral Resources**

Reporting of the Mineral Resources was completed in a similar manner to Kuridala. It should be noted that *“cobalt assays are not complete, and cobalt should only be considered as indicative. In addition, current copper heap leach processing options being considered do not recover cobalt”*.

*“Estimation by Golder in 2010 used median Indicator Kriging (IK) with a change of volume support to represent the expected mining selectivity. The change of support was supported by variogram analysis and more detailed conditional simulation studies at Greenmount and Kuridala. Matrix geologists undertook the geological interpretations and Golder assessed the geological zones and incorporated them into the geological control during grade estimation to reflect the geological*

*understanding provided by Matrix. The Mineral Resource estimated by Golder was for a 3 by 5 by 2.5 m (X, Y, Z dimensions) mining selectivity.”*

There has been no further drilling at Mt McCabe since 2010 that would affect the MRE hence the 2010 update was considered as current (in 2017). The Mineral Resources were reported in 2017 in accordance with the 2012 JORC Code & Guidelines.

Golder make mention of a 22 twin hole programme between the two main percussion drilling programmes which concluded that only the earliest drilling had an apparent under-call in copper grade. The number of holes (22) matches the number of holes reported for the Kuridala diamond twin hole programme, so it is uncertain if the programmes are the same. The conclusions are very similar with the under-call likely to have a 1 to 2% impact on the size of the MRE. This observation in the report is also accompanied by a comment on the possibility of copper grade under-call based on the sample digest technique with the potential for under-call of 3.5% for the copper grades.

A block model was constructed with 10m by 10m by 5m parent blocks, sub-blocked down to 5m by 5m by 2.5m. Mineralisation domains were defined using a 0.1% Cu cut-off which H&SC would consider as appropriate for reporting MRE at a 0.2% Cu cut-off.

A 3 pass search strategy using 1m composites was employed to assist data declustering with a maximum of 4 composites per drill hole and 32 composites in total. This might mean that for a 5m block height one sample, possibly two, within the block may not be included in the block grade estimate. There is no mention of the minimum number of data for block grade interpolation to occur.

Default density values for lithological units were derived from core measurements (method unknown) and air pycnometer results conducted by the analytical lab on RC samples. The latter are not considered ideal for in-situ bulk density but were factored to enable merging with the core data.

Resource classification was based on drilling density and is considered reasonable.

Table 13 details the MRE for a 0.2% Cu cut-off.

**Table 13: Mineral Resources for the Mt McCabe Deposit 0.2% Cu Cut-off**

Category	Mt	Copper %	Cu Kt	Cobalt ppm	Gold g/t
<b>Measured</b>	2.72	0.65	17.7	310	n/a
<b>Indicated</b>	1.98	0.57	11.3	260	n/a
<b>Inferred</b>	3.01	0.49	14.7	100	n/a
<b>Total MRE</b>	<b>7.71</b>	<b>0.57</b>	<b>43.9</b>	<b>220</b>	n/a

(from QMC's report "170822\_ASX Mt McCabe JORC resource restatement.pdf")

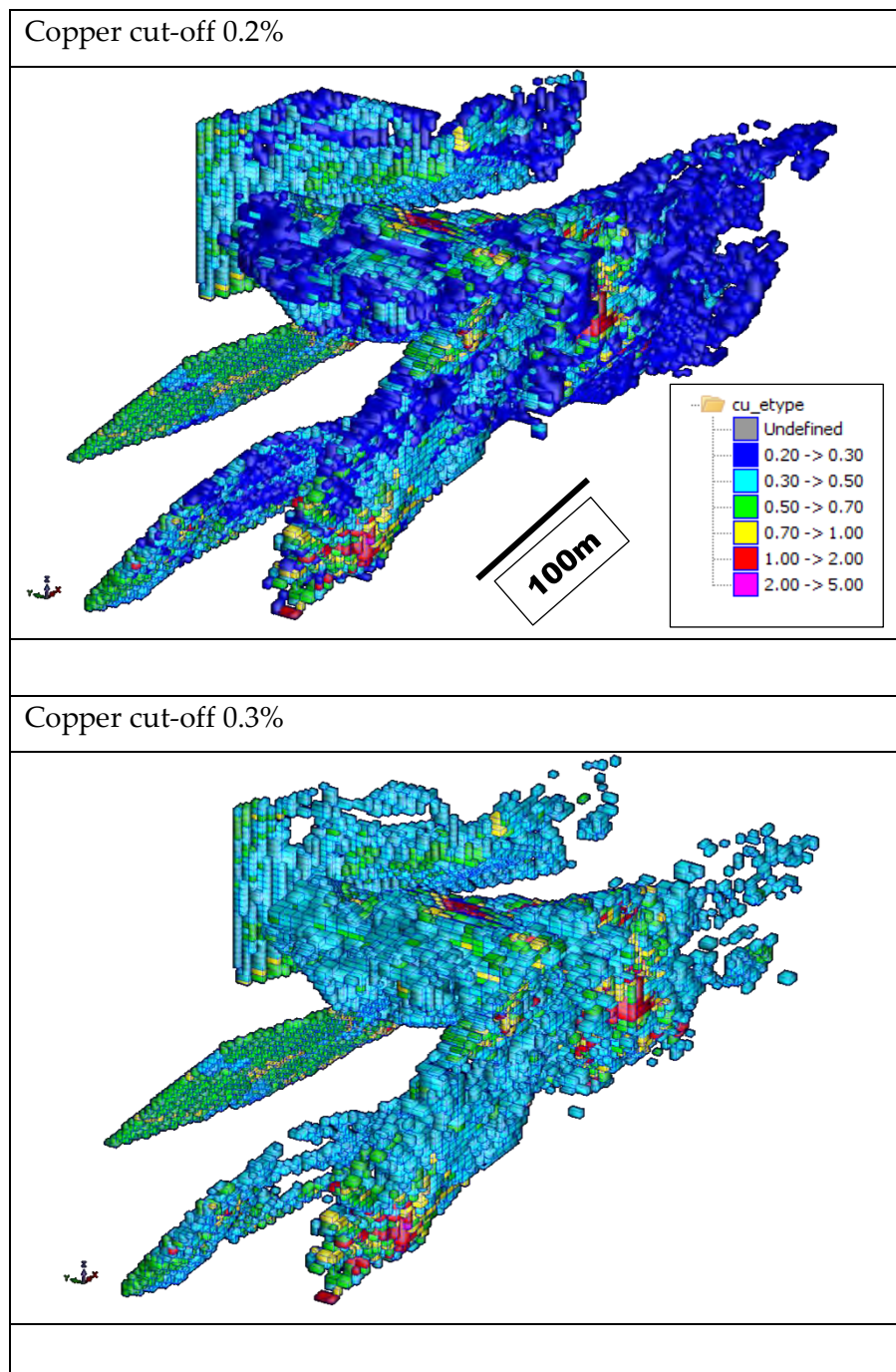
However, comment was made by Golder that "lower recovery and steeper terrain at Mt McCabe will likely require a higher cut-off for heap leach processing". Hence Mineral Resources were also reported at a 0.3% Cu cut-off (Table 14).

**Table 14: Mineral Resources for the Mt McCabe Deposit 0.3% Cu Cut-off**

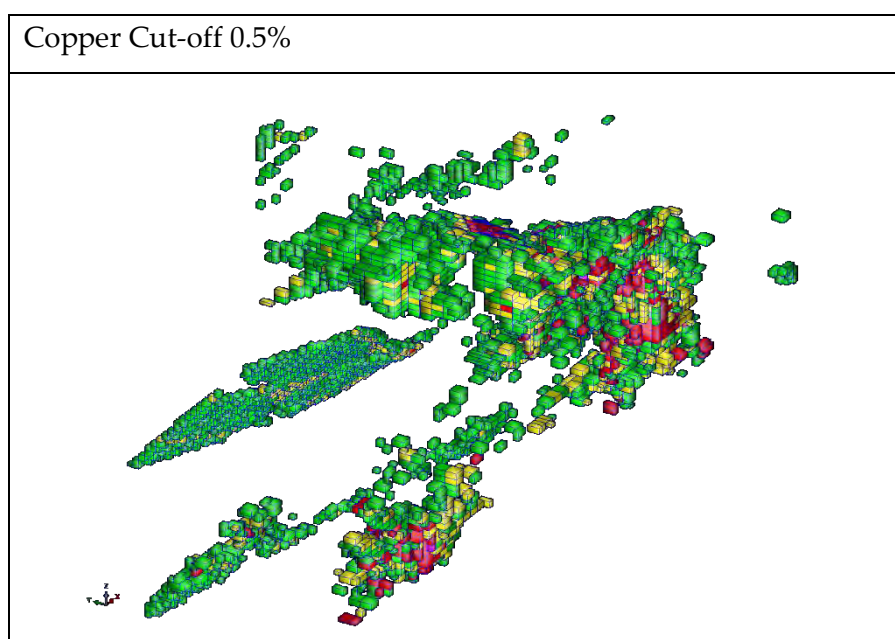
Category	Mt	Copper %	Cu Kt	Cobalt ppm	Gold g/t
Measured	1.88	0.82	15.4	350	n/a
Indicated	1.31	0.74	9.7	290	n/a
Inferred	2.04	0.61	12.4	100	n/a
<b>Total MRE</b>	<b>5.23</b>	<b>0.72</b>	<b>37.7</b>	<b>240</b>	<b>n/a</b>

(from QMC's report "170822\_ASX Mt McCabe JORC resource restatement.pdf")

Figure 36 shows the copper block distribution for the Mt McCabe deposit at a 0.2%, 0.3% and 0.5% copper cut-off.







**Figure 36: Copper Block Grade Distribution for the Mt McCabe Deposit**

*(view looking down to NE)*

Comparison of global resource estimates between H&S's 2004 model (using OK) and QMC's 2017 reporting show a marked difference in the tonnes and to some extent copper grade and hence contained metal (Table 15). The QMC estimates are both larger in size and copper grade. The reason for this is uncertain but most likely could be due to the extra drilling completed by Matrix in 2005.

**Table 15: Comparison of Mineral Resources for the Mt McCabe Deposit**

Company	Cut-off	Mt	Cu %	Cu Kt
H&S	0.2	4.85	0.51	24.9
QMC	0.2	7.71	0.57	43.9
H&S	0.3	3.21	0.65	20.9
QMC	0.3	5.23	0.72	37.7
H&S	0.5	1.7	0.89	15.1
QMC	0.5	2.63	1.05	27.6

As with other deposits the QMC model has slightly higher copper grades, which H&SC suggests as potentially due to either the grade interpolation technique i.e. median indicator kriging, or possibly the extra drilling or both.

#### **6.4.5.4 Exploration Opportunities**

There are two components to the exploration opportunities for Mt McCabe. The first is the brownfields opportunity which aims to upgrade and possibly extend the current Mineral Resources with a series of validation and exploratory holes. This might include locating immediate satellite mineralisation to the main body of mineralisation. The second

opportunity is to move slightly further afield and test areas of favourable geoscientific data e.g. coincident copper surface geochemistry and structural/lithological settings.

Fetch consider that there is an excellent potential at McCabe for locating additional copper and cobalt resources. Figure 37 shows the immediate target areas under consideration for exploration follow up proximal to the existing Mineral Resources. Targets are

1. The breccia pipe is unexplored at depth.
2. The fault lodes are open at depth and along strike.
3. Repetitions of the structural setting occur along the Manomm Fault Zone north and south from Mt McCabe. In each instance the Manomm Fault (NNW trending) is intersected by an ENE fault set resembling the Mt McCabe plumbing system. Rock chip sampling on the southern structure has produced highly anomalous cobalt  $\pm$  copper results making this a prime target.

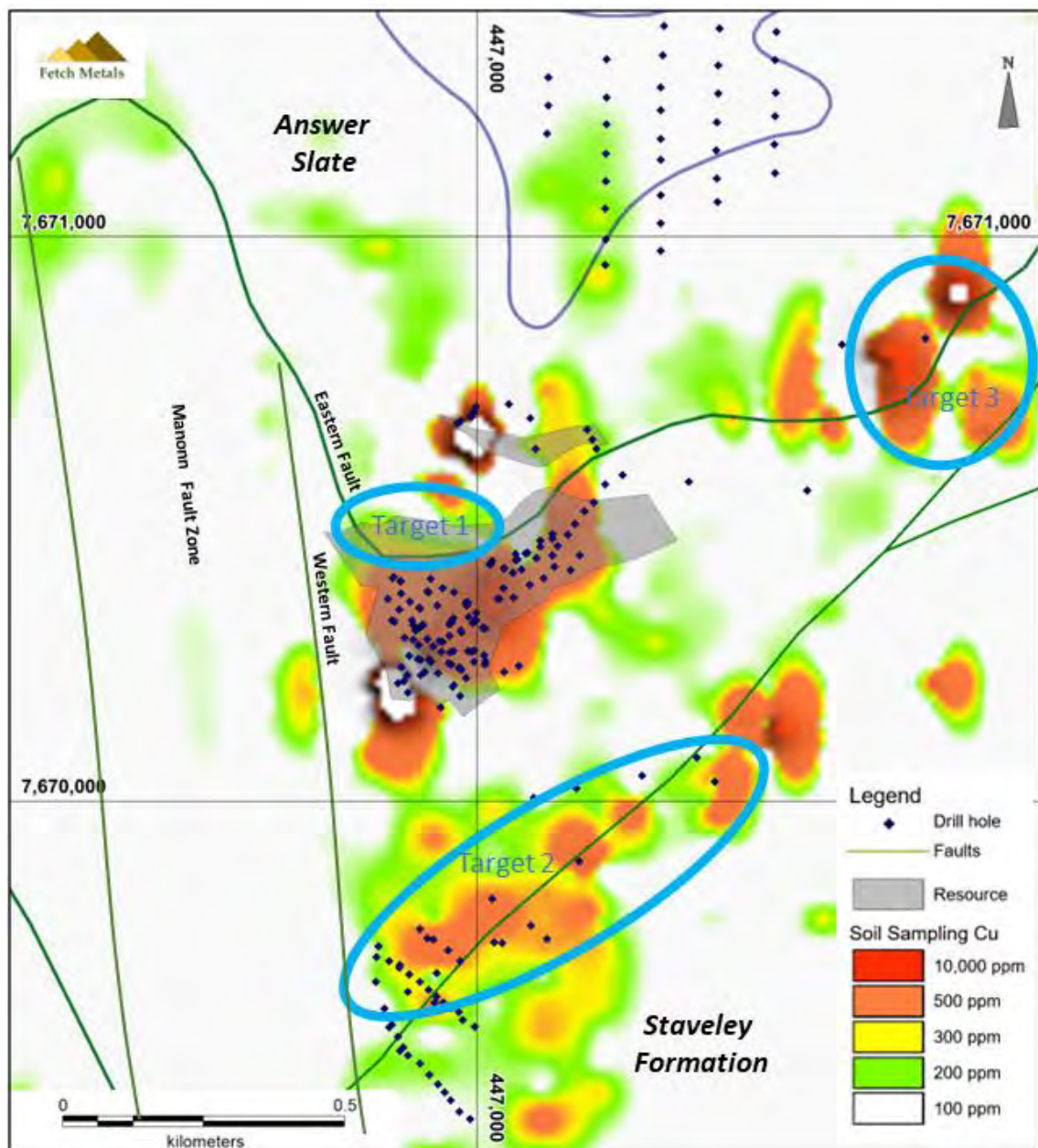


Figure 37: Exploration Target Map for the Mt McCabe Deposit Area

### 6.4.6 Vulcan

The Vulcan prospect area is located 3km south of Greenmount, 35km south of Cloncurry and lies within ML2519 that covers an area of 4ha. The prospect generally lies within a broad valley, with the Vulcan Mine located on a low hill in the south-east of the prospect.

#### 6.4.6.1 *Geology & Mineralisation*

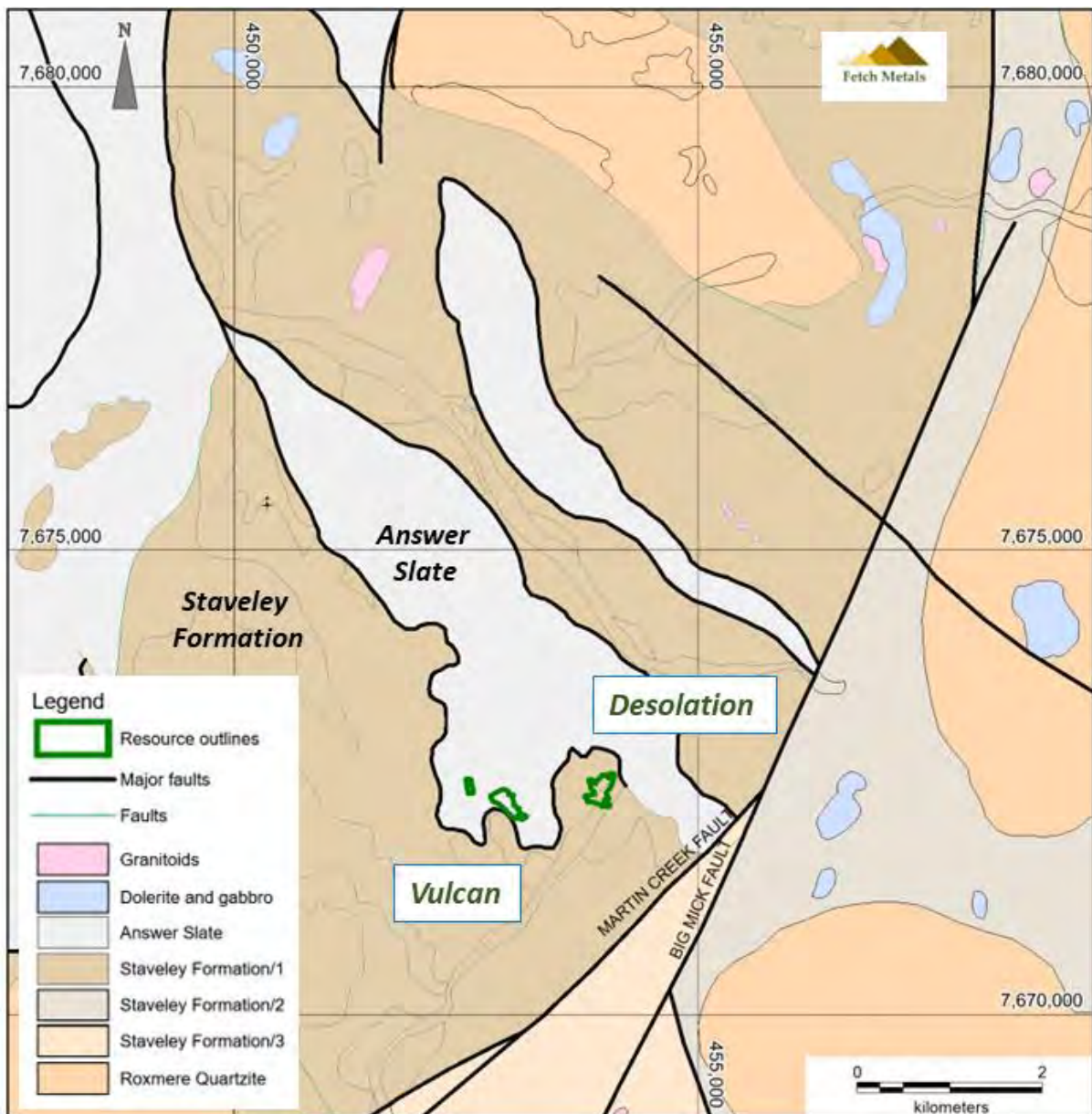
Copper mineralisation at Vulcan is hosted by the Answer Slate immediately east of the Answer Slate/Staveley Formation contact (Figure 38). This same stratigraphic relationship occurs for the Greenmount and Mt McCabe mineralisation. The Vulcan mineral zone has an elongate N-S axis with a strike extent of around 170m and a width ranging from 2 to 25m. The dip extent has not been fully explored, however historic drilling has indicated a down dip extent of at least 180m. The overall dip to the mineralised envelope is around 23° to the east.

Two significant zones of copper mineralisation occur within the prospect area, at the Vulcan Mine area and some 350m to the north-west at the Vulcan North prospect. In the Vulcan Mine area copper mineralisation is predominantly in the form of malachite, minor azurite and rare native copper. At Vulcan North known mineralisation to date has been in the form of chalcocite.

Copper mineralisation is structurally controlled occurring in quartz and quartz-feldspar veins in highly deformed and sheared carbonaceous shale and slate. Copper and rare gold mineralisation follows two sets of veins with en-echelon development of the veins resulting in numerous mineralised shoots each having a limited strike and dip extent. Copper mineralisation is largely confined to black shale and fractured cherts of the Answer Slate and is strongly associated with kaolinite alteration and to a lesser extent silicification and iron staining.

The secondary copper assemblage derived from the primary sulphides is dominated by malachite with minor quantities of azurite and cuprite also present in some holes. The secondary copper minerals primarily occur as veins and with quartz veins parallel to the two vein sets. Secondary copper has also migrated along fractures, bedding and joints in the Answer Slate adjacent to the vein sets giving rise to a complex distribution of copper mineralisation. The depth of penetrative oxidation from weathering is estimated to be in the range of 30 to 50m.

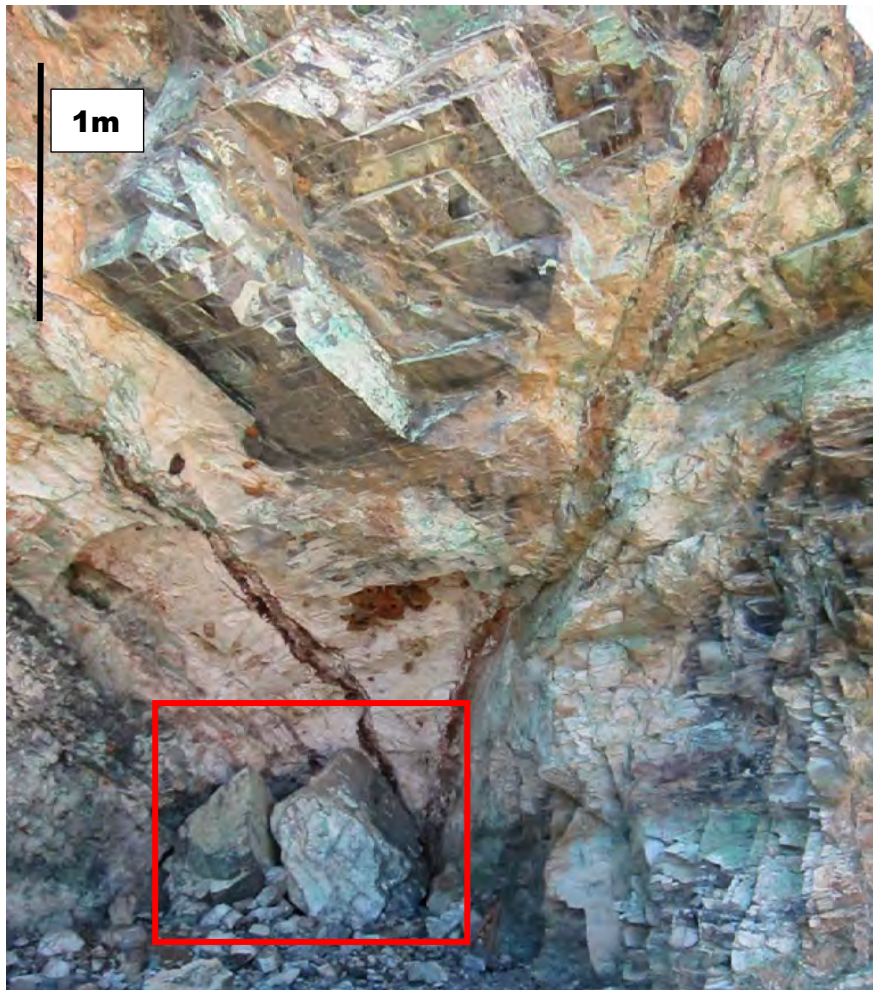




**Figure 38: Geology Map for the Vulcan and Desolation Deposits**

Higher grade mineralisation is often associated with two sets of fracturing and shearing and subsequent quartz and malachite veining. One fault set parallels bedding and trends north-west with a low angle dip of 20 to 30° to the north-east. A second, steeper set, is near vertical to north-west dipping and cross cuts bedding and trends to the northeast.

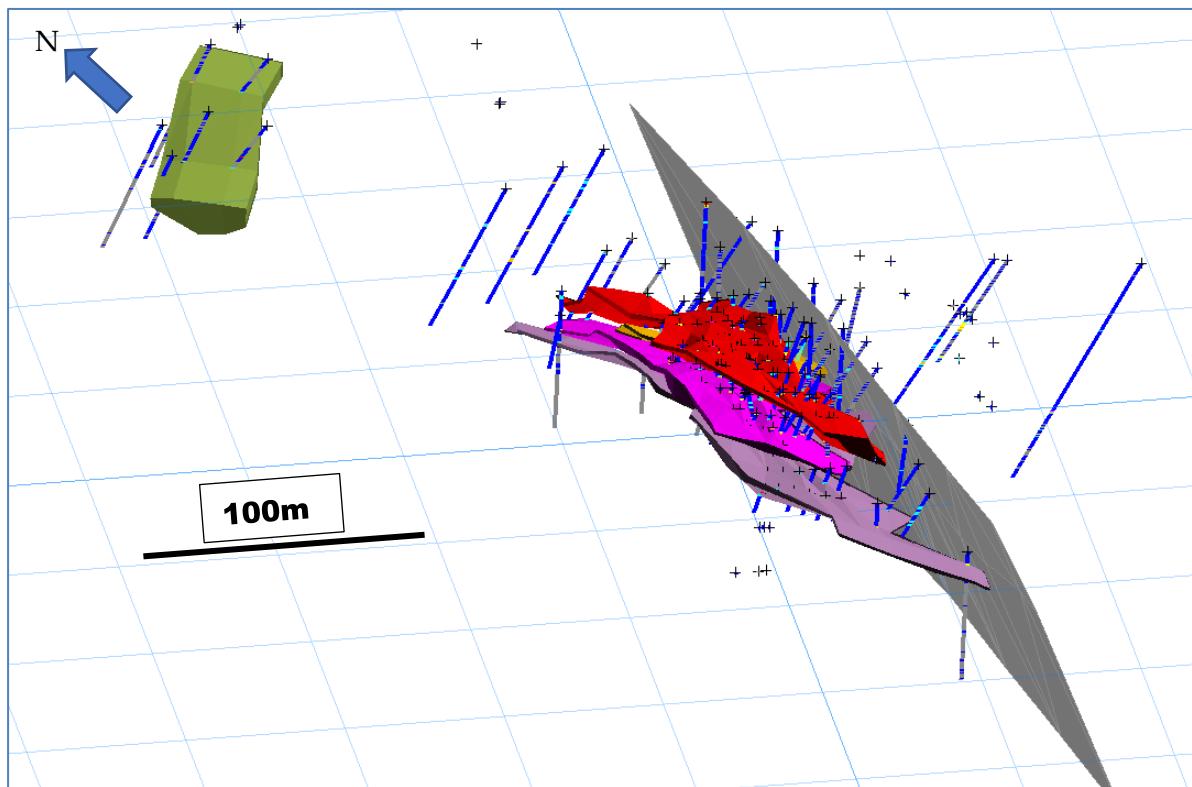
The distribution of old workings suggests that most of the extracted material was derived from high grade vein-related mineralisation occupying small fractures cross-cutting the main deposit (Figure 39). The red square in Figure 39 marks the blocked access to a mined shoot.



**Figure 39: Structural Complexity for the Vulcan Deposit**

Mineralisation occasionally occurs in the top of the basement biotitic unit, usually hosted by shearing, beneath zones of higher-grade mineralisation and is most likely due to secondary leaching of copper into fractures.

Figure 40 is an oblique view of the mineral lodes associated with the Vulcan and Vulcan North deposits.



**Figure 40: Oblique View of Vulcan Mineral Lodes Showing Drillholes**

*(from QMC resource estimation announcement)*

#### 6.4.6.2 Exploration and Mining History

The first reported exploration at the Vulcan area was by R Entriken working the deposit from 1905 to 1906. Vulcan was reportedly mined from 1907 to 1931 with a recorded production of 280 tons of ore, averaging 4% copper. The distribution of old workings suggests that most of the ore extracted was derived from high grade vein-related mineralisation occupying small fractures crosscutting the main deposit. Interestingly, a high grade of gold was reported from this production – averaging 19 g/t, which is considered very high in comparison to other deposits in the area.

Records indicate underground workings extend to 46m below surface but there is a lack of information on depth and location of the shafts, drives and winzes. The workings consist of several small adits, small open cuts and shafts. Numerous mullock heaps are scattered around the Vulcan Hill with workings concentrated on the higher-grade central area and the small scale, more easily open cut southern end.

The National Lead Company undertook mapping and sampling programmes and conducted a resource assessment in 1955.

Modern exploration commenced with CEC in 1963, with 1 diamond and 7 percussion holes completed along with surface mapping. The diamond hole reported an intersection of quartz veining containing sulphides returning 21m @ 1.07% Cu from 70 metres. Reported recoveries were very poor and Matrix Metals failed to repeat the intersections with follow up RC drilling.



Powder Metals Australia Ltd (“PMA”) in the 1980s undertook mapping and two drilling campaigns using percussion and Airtrack drilling. 1,605.5m of shallow percussion drilling was completed in 77 holes across the deposit. Geological and topographic mapping along with metallurgical testing was also completed at this time.

Valdora Minerals and Homestake completed a regional soil sampling program that included the Vulcan Mine area in 1993, and then conducted a follow-up 17 hole RAB program over identified Cu/Au anomalies.

In 1996 Majestic conducted an extensive exploration program including geological mapping, surface sampling and a 12 hole RC program for 369m and 2 DD holes for 70 metres.

Matrix commenced field programmes in 2004 completing detailed mapping, soil sampling, rock chip sampling and LAG sampling. Matrix also completed three phases of drilling, totalling 47 RC drill holes for 3,909m, which resulted in extending the area of drilling in strike and depth.

#### 6.4.6.3 Mineral Resources

The August 2017 QMC resource statement confirms that a similar modelling process was used for the resource estimates as per the other Golder estimates for Kuridala and Mt McCabe.

This includes the reference to the potential under-calling of copper assays from the earlier percussion hole sampling programme(s) and the relatively small negative impact on the resource estimates.

The estimates have been reported for a 0.2% Cu cut-off (Table 16).

**Table 16: Mineral Resources for the Vulcan Deposit.**

Category	Tonnes	Copper %	Cu Kt	Cobalt ppm
Measured	0	0	0	0
Indicated	1.05	0.65	6.8	270
Inferred	0.36	0.63	2.3	270
<b>Total MRE</b>	<b>1.42</b>	<b>0.65</b>	<b>9.2</b>	<b>170</b>

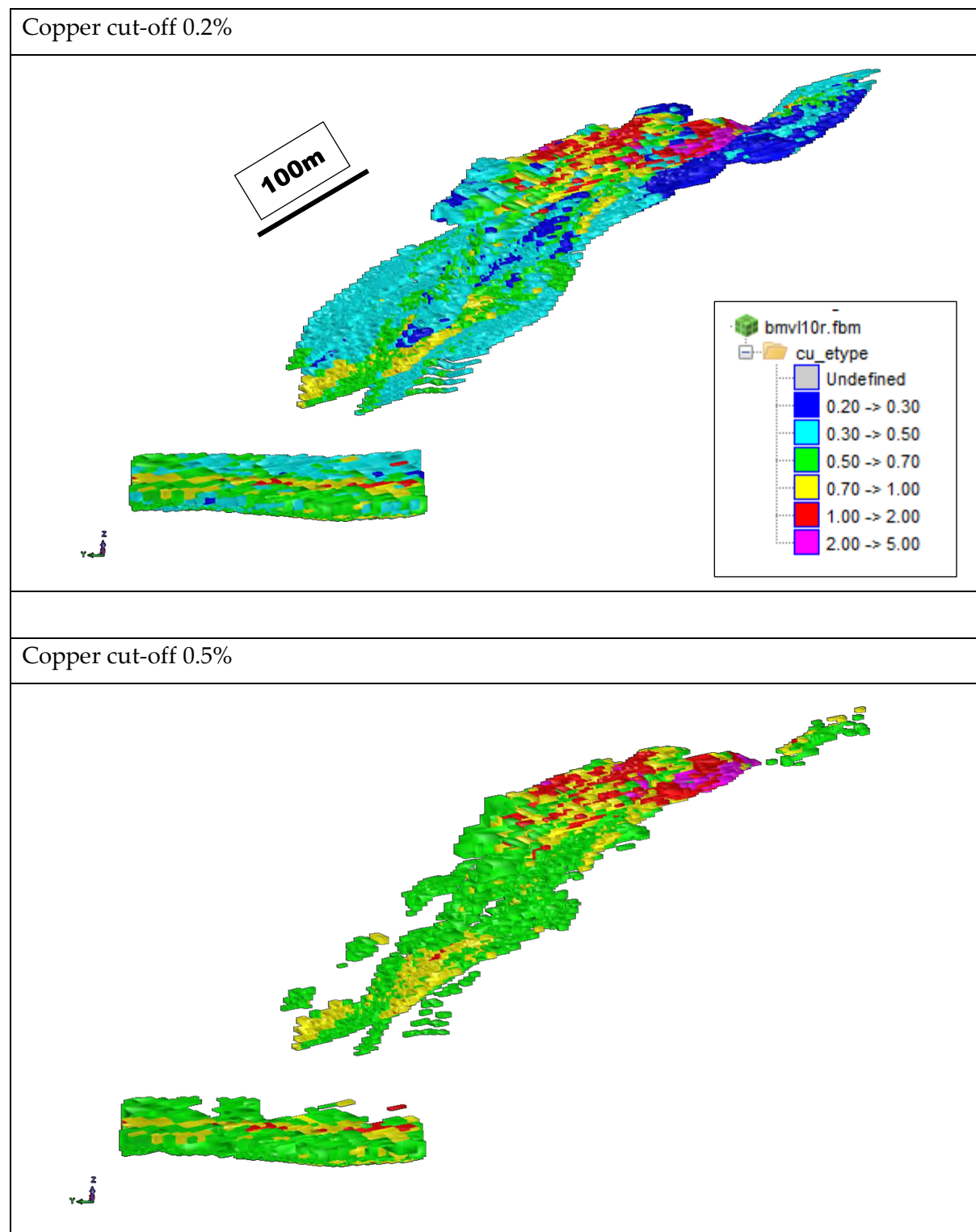
(from QMC report “170828\_Vulcan JORC 2012 resource restatement.pdf)

A block model was constructed with 10m by 10m by 5m parent blocks, sub-blocked down to 5m by 5m by 2.5m. Mineralisation domains were defined using a 0.1% Cu cut-off which is considered appropriate for reporting Mineral Resources at a 0.2% Cu cut-off. Block grade estimates (as recoverable resources) for copper were undertaken using the median indicator kriging technique. Resource classification was based on sample density from the drilling.

Due to a lack of data, gold was not estimated. Cobalt was estimated independently by OK but with only 40% of the copper grades having a cobalt assay and was completed to provide an indicative result for cobalt.

Default density values were derived from a modest number of core samples (immersion in water – displacement method) and air pycnometer measurements on RC chip samples. The latter are not really suitable for in-situ density measurements and required factoring to enable merging the data with the core sample data. The default values that were used appear reasonable.

Figure 41 shows the copper block distribution for the Vulcan deposit at a 0.2% and 0.5% copper cut-off.



**Figure 41: Copper Block Grade Distribution for the Vulcan Deposit**

*(view looking down to ESE)*

Comparison of the QMC's MRE with H&S's 2004 model is shown in Table 17. It shows a marked difference between the two resource models, albeit that both have refrained from identifying Measured Resources. The difference in size is likely due to the 2005 Matrix drilling which makes up a substantial component of the drillhole database. There is some comfort to be gained in the confidence of the estimates in that the global copper grades are quite similar.

**Table 17: Comparison of Mineral Resources for the Vulcan Deposit**

<b>H&amp;S</b>	<b>OK</b>	<b>0.5% Cu cut-off</b>	
	<b>Mt</b>	<b>Cu %</b>	<b>Cu Kt</b>
Measured	0	0	0
Indicated	0.12	1.26	1.5
Inferred	0.19	0.95	1.8
<b>Total</b>	<b>0.31</b>	<b>1.07</b>	<b>3.3</b>
<b>QMC</b>	<b>OK</b>	<b>0.5% Cu cut-off</b>	
	<b>Mt</b>	<b>Cu %</b>	<b>Cu Kt</b>
Measured	0	0	0
Indicated	0.44	1.09	4.8
Inferred	0.19	0.89	1.7
<b>Total</b>	<b>0.63</b>	<b>1.03</b>	<b>6.5</b>

#### 6.4.6.4 Exploration Opportunities

There are two components to the exploration opportunities for the Vulcan deposit. The first is the brownfields opportunity which aims to upgrade and possibly extend the current Mineral Resources with a series of validation and exploratory holes. This might include locating immediate satellite mineralisation to the main body of mineralisation. The second opportunity is to move slightly further afield and test areas of favourable geoscientific data e.g. coincident copper surface geochemistry and structural/lithological settings.

Fetch consider that there is an excellent potential at Vulcan for locating additional copper and cobalt resources. Specific examples include:

1. Historic drilling is generally shallow with only a minor number of holes having explored the prospective Staveley Fm/Answer Slate contact.
2. The down dip extent of the mineralisation is also unexplored. CEC's diamond hole (the only deep hole drilled at Vulcan) intersected significant copper grades.

The Vulcan North prospect is extremely prospective (Figure 42) and has a high potential to host a resource of at least the size of Vulcan or better, with the potential for the two systems to be linked. The prospect has very little surface expression and is essentially blind. Only two phases of drilling have been completed for a total of 6 holes, 4 of which returned significant Cu intersections, including;

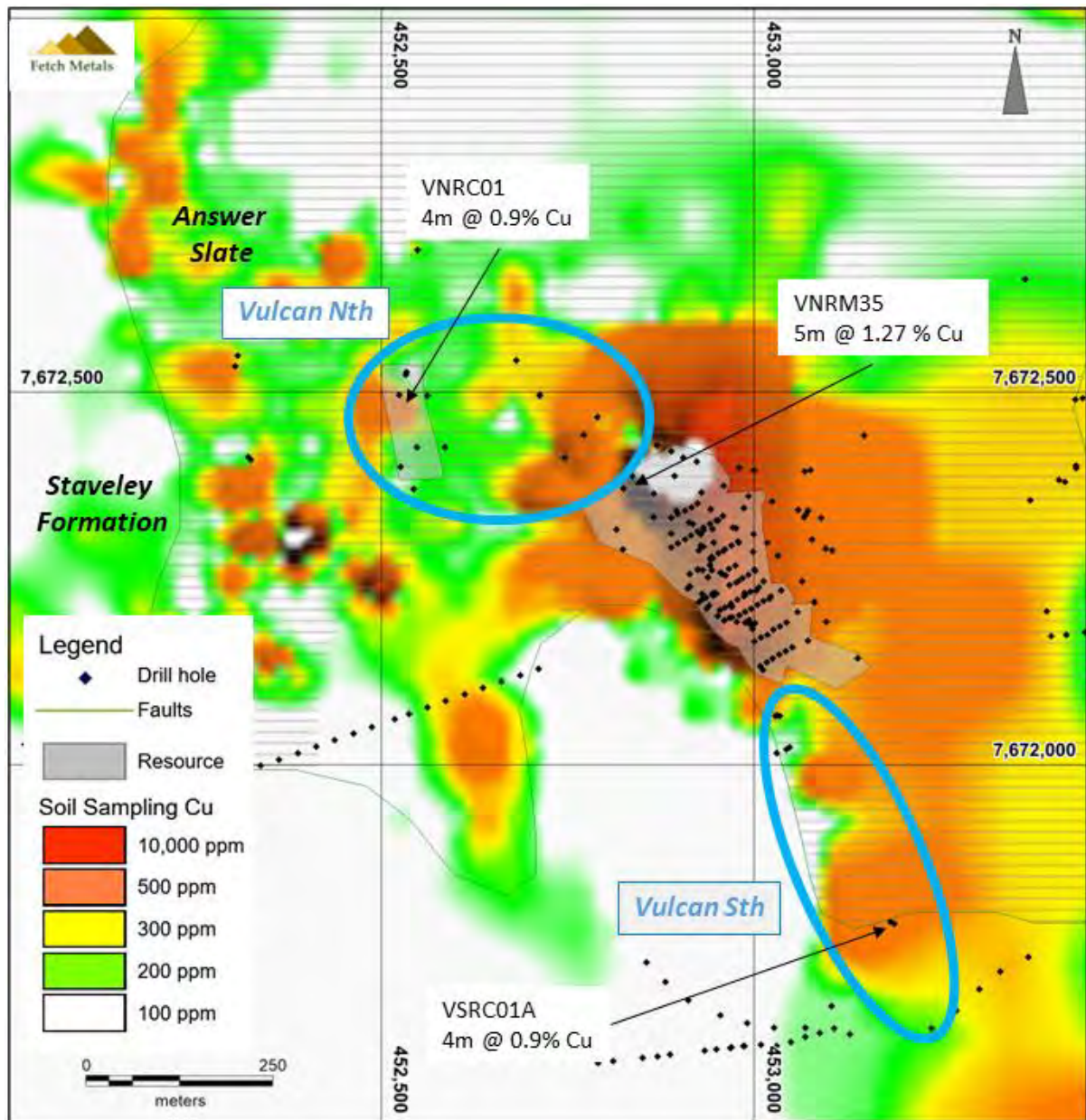
- VNRC01 – 4m @ 0.9% Cu
- VNRC04 – 4m @ 0.89% Cu



Copper mineralisation at Vulcan North is in the form of chalcocite rather than dominantly malachite as at Vulcan. Fetch believe this has significant implications for the size potential of the prospect and may even indicate a closer proximity to a primary source of copper.

The immediate north-west extension to the Vulcan deposit also remains prospective for addition to the existing Vulcan resource. Significant intersections in VRCM16 and VRCM35 (drilled 40m to the north-west), indicate that copper mineralisation does continue in this direction.

- VRCM16 - 18m @ 0.86% Cu from 38m, incl 4m @ 1.7% Cu
- VRCM35 – 5m @ 1.27% Cu



**Figure 42: Exploration Target Map for the Vulcan Deposit Area**

The Vulcan South prospect remains prospective for copper mineralisation. Only one hole VSRC01A has been completed in the area and significant copper was intersected (4m @ 0.9% Cu from 33m). The area is again adjacent to a quartz/chert unit which may extend from the

Vulcan deposit itself. Follow up work in the area should start with detailed mapping of the quartz/chert unit and the area between Vulcan and Vulcan South, followed up by at least one RC hole to be located according to the mapping.

#### **6.4.7 Desolation**

The Desolation deposit lies 38km south of Cloncurry within MDL205. It also lies 0.7km east of the Vulcan deposit and 3.5km southeast of the Greenmount deposit.

##### **6.4.7.1 Geology & Mineralisation**

The Desolation deposit is hosted within Mid Proterozoic graphitic and carbonaceous slate of the Answer Slate unit which is overlain by the calc-silicates of the Corella Formation in the east and to the north. The contact between these two stratigraphic units was mapped and interpreted as a thrust fault by Homestake geologists in the 1990s. The local structure is also dominated by a north-south trending open anticline where the current resource area is situated on the eastern limb. Bedding in most outcrops dips shallowly towards the east, although variations to shallow and moderate south and north dips occurs locally along strike (Figure 43). Small scale mining has taken place from shallow shafts, but production from the workings is unclear.

The copper mineralisation at Desolation normally occurs as veins, stockworks and breccias of malachite, chrysocolla, chalcocite and iron oxides with varying degrees of silicification, chloritization and carbonisation.



**Figure 43: Desolation Deposit**

#### 6.4.7.2 *Exploration and Mining History*

Little is known of the early exploration and mining history, with small scale mining taking place from shallow shafts at Desolation, Desolation West and Desolation East (now known as Speculation). The production from these workings is unknown.

Between 1969 and 1971 Frio Mining explored the Desolation West and Speculation prospects through geological mapping, geochemistry, geophysics (IP Surveys), and percussion and diamond drilling (5 DD holes for a total of 640m drilled).

BHP completed an air photo interpretation of the MDL 205 area to investigate the extent of cupriferous Answer Slate. Based on the outcome of this study, 26 RAB holes were completed in December 1983, mostly in the area between Greenmount in the north and Desolation in the south. Areas that could contain significant copper mineralisation under shallow alluvial cover were targeted during this drilling programme. RAB drilling to fresh rock confirmed the presence of cupriferous carbonaceous shale under much of the area of non-outcrop.

Homestake has also undertaken a series of drilling and surface testing surveys at several satellite prospects surrounding the Greenmount project including the Desolation and Desolation West prospects. The Answer Slate/Steveley Fm contact was targeted at both prospects. At Desolation, results from a total of 8 RC holes indicated the presence of near-surface low grade oxide copper mineralisation in the Answer Slate. Similar results were obtained from the holes completed at Desolation West. Neither of these prospects were followed-up by Homestake at that time.

A total of 21 historical holes were recovered from the Mines Department open file database with significant intersections including 11m @ 1.97% Cu from 1m in hole DRC04 and 40m @ 0.86% Cu from surface in hole DRC09 from the Homestake drilling. However, none of the historical drilling is incorporated into the current resource estimate due mainly to the lack of information on collar location, downhole survey and assay certificates.

At the end of 1996, Majestic completed 4 RC holes at Desolation and a preliminary resource estimate.

In June 2000 Matrix Metals Limited (Matrix) acquired MDL 205 from Majestic and started a detailed assessment of the tenement shortly thereafter. Four percussion holes targeted the copper mineralisation at Desolation for a total depth of 129 meters. Copper intersections encountered in this programme were encouraging and confirmed the earlier findings of Homestake and Majestic for a minable copper oxide deposit at Desolation.

QMC drilled 52 RC holes for a total of 1,855m in June 2012 with most of the holes being relatively shallow i.e. limited to a depth of 30m. The drilling intersected a broad zone of low to moderate grade copper mineralisation with gold and cobalt credits in most holes. The highlights from the program include:

- 20m @ 0.87% Cu, 0.23g/t Au and 561ppm Co from 14m in Hole DS12RC27, including 6m @ 2.12% Cu, 0.55g/t Au and 757ppm Co from 20m;
- 17m @ 1.31% Cu, 0.44g/t Au and 532ppm Co from 13m in Hole DS12RC44, including 7m @ 2.72% Cu, 0.94g/t Au and 711ppm Co from 15m;
- 19m @ 2.12% Cu, 0.91g/t Au and 849ppm Co from 6m in Hole DS12RC47, including 9m @ 4.07% Cu, 1.68g/t Au and 1202ppm Co from 9m;



- 13m @ 1.39% Cu, 0.6g/t Au and 564ppm Co from 12m in Hole DS12RC52, including 4m@ 3.5% Cu, 1.59g/t Au and 977ppm Co from 13m;

In 2013, the Speculation prospect was the focus of an XRF-based soil geochemistry program and a prospect scale geological mapping campaign, the findings of which formed the basis of the 2014 RC drilling program. In 2014, two RC holes at 60m each were drilled into the Speculation prospect with the best intersection being 40m@ 0.30% Cu and 365ppm Co from 14m in hole SP14RC02.

In 2018, an airborne gravity gradiometry (AGG) survey was conducted by joint venture partner Teck Australia Pty Ltd, as part of a large-scale survey covering the Marimo Basin. The survey covers approximately two thirds of the MDL and consists of a total of 119,606 line-metres flown between the 3<sup>rd</sup> and 5<sup>th</sup> of September 2018, with a line spacing of 250m. No details of any outcomes are available.

#### 6.4.7.3 Mineral Resources

Detail is lacking in the QMC published report supplied for this deposit, with no JORC Table 1 included, but with a telling comment "*the geological confidence is low to moderate*".

The estimates were completed using a mineral domain designed to a 0.2% Cu cut-off which might be considered inappropriate for reporting MRE at a 0.2% Cu cut-off. A top cut of 6% copper was used for the composite data but there is no reference to the impact that the top cut had. OK was used for the grade interpolation but any other detail is conspicuous by its absence. Guojian Xu (Consultant Redrock Exploration Services) and Doug McClean (QMC Employee) appear to assume joint responsibility for both the Exploration Data and the Mineral Resources.

No bulk density was available so nominal values were applied to oxide, transitional and fresh rock material. The values used are appropriate.

The MRE are reported for a 0.2% Cu cut-off (Table 18).

**Table 18: Mineral Resources for the Desolation Deposit**

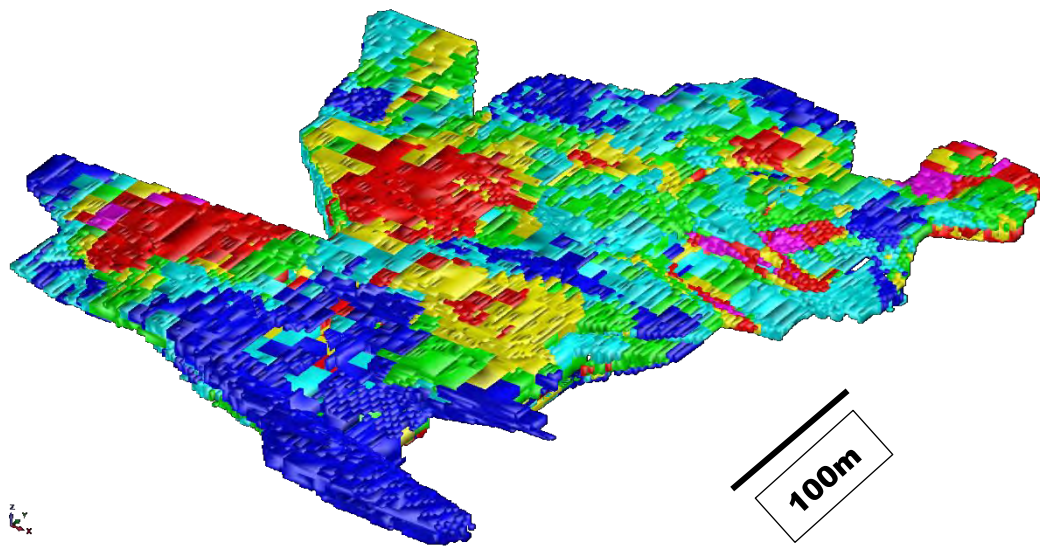
Category	Mt	Copper %	Cu Kt	Cobalt ppm	Gold g/t
Measured	0	0	0	0	0
Indicated	0.82	0.76	6.2	600	0.25
Inferred	1.12	0.59	6.6	400	0.16
<b>Total MRE</b>	<b>1.94</b>	<b>0.66</b>	<b>12.8</b>	<b>500</b>	<b>0.2</b>

(from QMC report "120927\_Desolation JORC resource report.pdf")

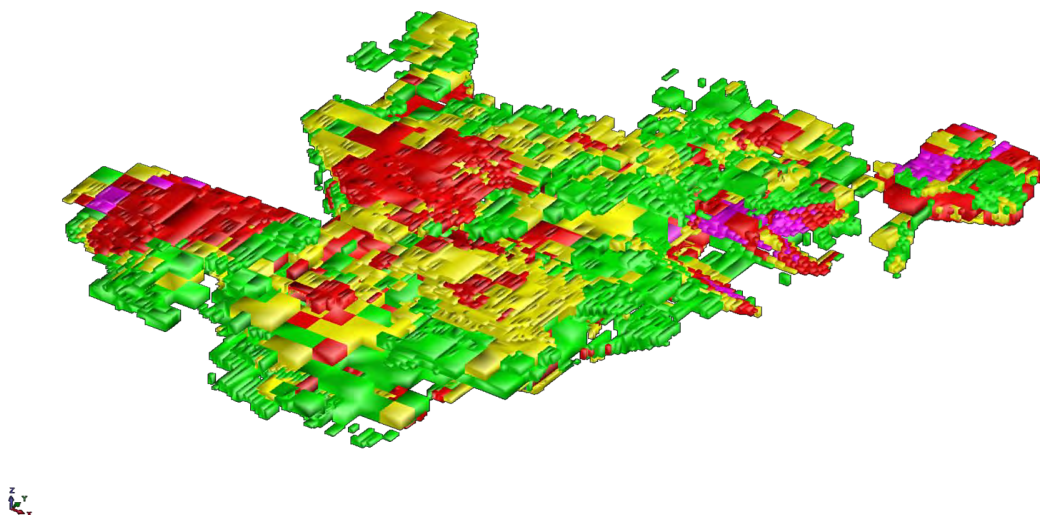
There is no H&S model for comparison.

Figure 44 shows the copper block distribution for the Desolation deposit at a 0.2% and 0.5% copper cut-off.

Copper cut-off 0.2%



Copper cut-off 0.5%



**Figure 44: Copper Block Grade Distribution for the Desolation Deposit**

*(view looking down to NNW)*

There is no comparison with any H&S model.

The Mineral Resources are considered reasonable for the classification of the deposit.

#### **6.4.7.4 Exploration Opportunities**

There are two components to the exploration opportunities for the Desolation deposit. The first is the brownfields opportunity which aims to upgrade and possibly extend the current Mineral Resources with a series of validation and exploratory holes. This might include locating immediate satellite mineralisation to the main body of mineralisation. The second

opportunity is to move slightly further afield and test areas of identified anomalism from historical geochemical sampling, drilling and mapping.

Fetch consider that there is an excellent potential at Desolation for locating additional copper and cobalt resources (Figure 45). Specific examples include:

- Target 1: Anomalous copper and gold in rock chip samples over a NW strike of at least 1km. This is interpreted as a possible northern extension to the Desolation structure. Homestake completed a few soil lines but analysed for gold only.
- Target 2: Desolation East/Speculation prospect area consists of visible copper in breccias offset by faulting and coincident anomalous copper soil geochemistry in a favourable lithological setting.
- Target 3: Desolation West/South prospect areas contains anomalous copper soils and drilling results midway between Vulcan and Desolation resources.

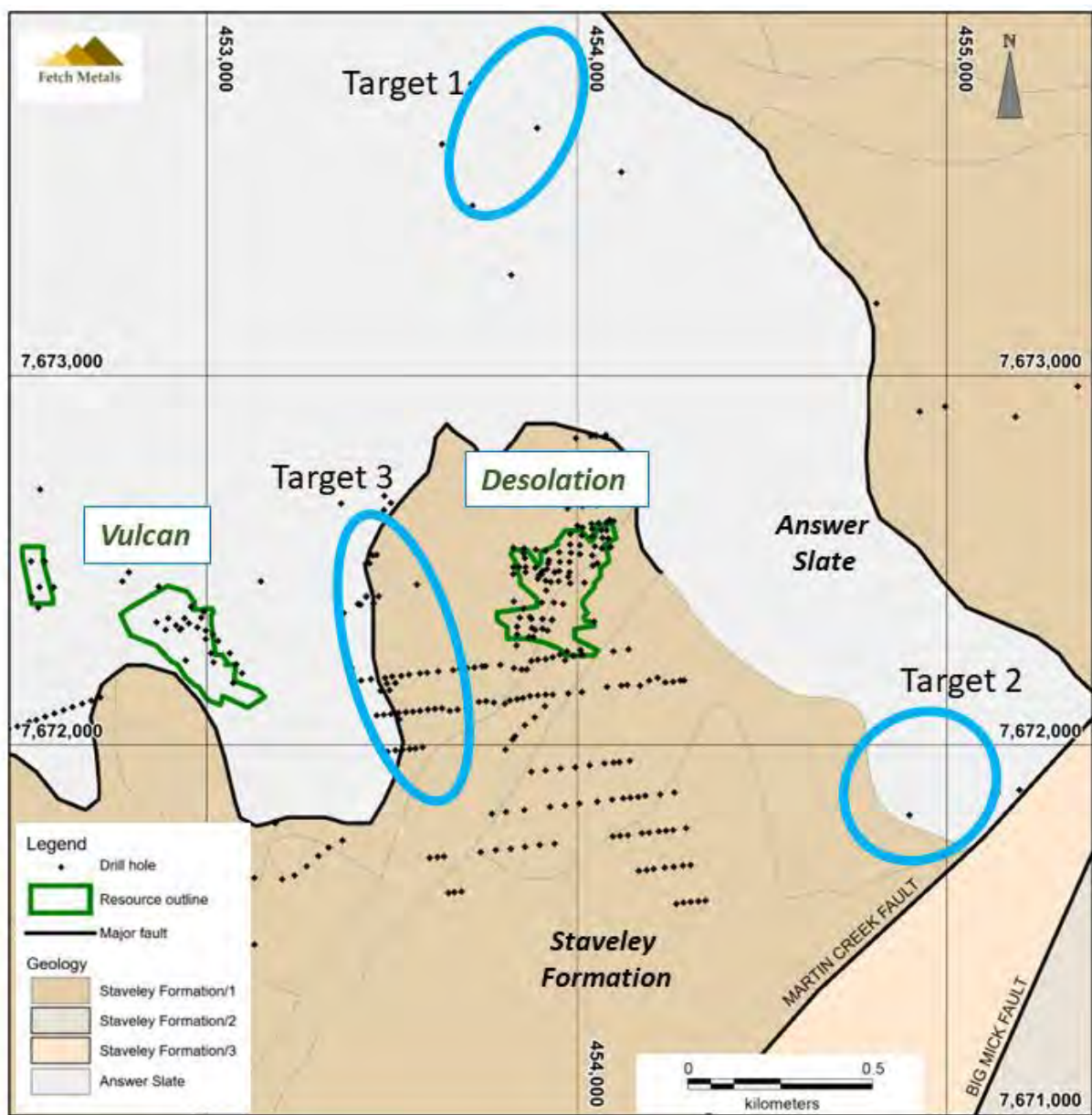


Figure 45: Exploration Target Map for the Desolation Deposit Area

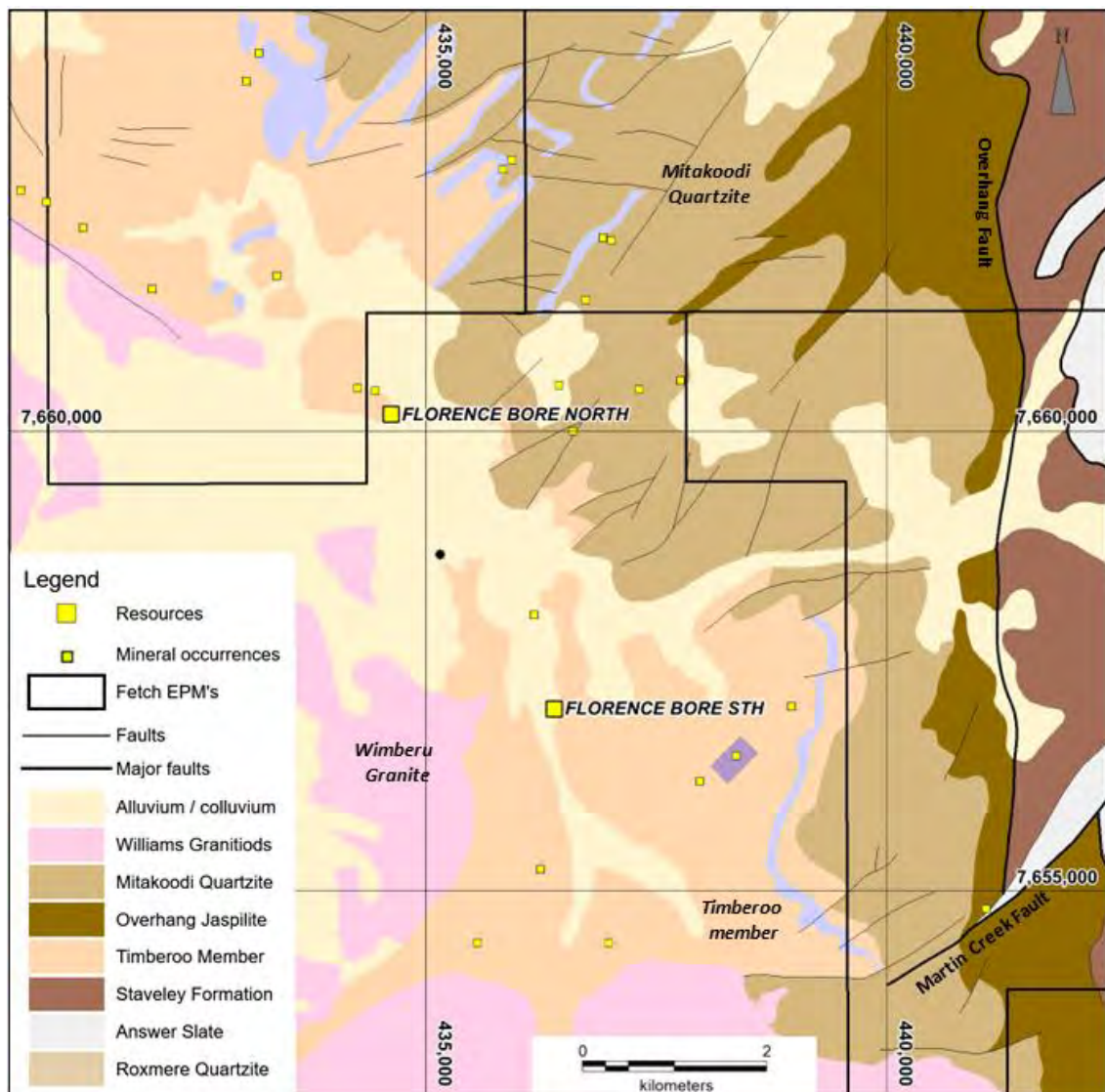


### 6.4.8 Florence Bore

The Florence Bore prospect occurs 40km south of Cloncurry on EPM15285. The prospect was drilled by ActivEX in 2012-2014 and comprises the Florence Bore North ("FBN") and South 1 ("FBS1") deposits.

#### 6.4.8.1 Geology and Mineralisation

The Florence Bore deposits are hosted by NE striking structural zones within metasediments of the Malbon Group that occur as roof pendants and rafts within the Wimberu granite batholith (Figure 46).



**Figure 46: Geology Map for the Florence Bore Area**

Mineralisation consists of both dissemination and veinlets of chalcopyrite or copper oxides, dependent on the depth of oxidation from weathering processes. The type of host rock does not seem to impact on the assay grades as the controls on mineralisation appear to be structural. Significant gold, cobalt and rare earth minerals are also associated with the copper mineralisation.

The distribution of mineralisation at FBN is reasonably straightforward with values above background forming a clear mineral body striking around 037° and dipping around 60° towards the southeast. The geological continuity of mineralisation above background is good however high grades appear to be patchy, which is relatively normal for this type of deposit. A wireframe solid was constructed at a nominal 0.1% Cu cut-off, outlining this mineralised body. The mineralisation measures 420m along strike with a variable true thickness of a few metres to 22m. The Mineral Resource is exposed at surface and extends to a depth of 195m.

The distribution of mineralisation at FBS1 is a little more complex than that at FBN but overall, it strikes at around 037° and dips around 80° towards the southeast. Again, the geological continuity of mineralisation above background is good however high grades appear to be patchy. Two wireframe solids at a 0.1% Cu cut-off were constructed, a dominant Main Lode and a lesser Hangingwall Lode, reflecting some of the mineral complexity. The mineralisation measures 360m along strike with a variable true thickness of between 15 and 45m. The Mineral Resource is exposed at surface and is interpreted to extend to a depth of 185m.

#### **6.4.8.2 Mining History & Exploration**

Prospecting started as early as the 1890's with modern exploration occurring after the Second World War in the late 1950's and 1960's. A long list of explorers have worked across this area with approximately twenty exploration permits held over the Florence Creek area since the 1950's. EPM 15285 contains numerous, small historical workings that have been the focus of most previous exploration campaigns with only the Trump Mine being the most significant. That old mine site is covered by an ML not held by Fetch but within the boundary of the current Fetch EPM.

Previous work has consisted of mapping, rock chip, soil, and stream sediment sampling, along with detailed ground magnetics, some IP lines and RC drilling. Cyprus/Arimco undertook exploration in the 1990s consisting of detailed soil sampling and ground magnetics over areas containing known mineralisation (mostly historic workings as well as some stream sediment anomalies), followed by geological mapping and rock chip sampling. This work identified a series of prospects, mostly consisting of secondary copper mineralisation related to skarns, shears, or magnetite/hematite ironstones.

MIM flew the detailed Wimberu Helimag Survey between 1995 and 1997 and highlighted a significant anomaly at Turps North. A small IP survey was completed over the old workings, with no follow up drilling.

ActivEX acquired the project in 2007, and conducted geochemical and geophysical surveys, field inspections and mapping, the acquisition and interpretation of aeromagnetic, radiometric and gravity data, and completed extensive drilling and a resource estimation.

#### **6.4.8.3 Mineral Resources**

H&SC completed Mineral Resource estimates for the FBN and FBS1 deposits in 2014. The estimates were reported for a copper cut-off grade of 0.5% (Table 19). The lower table shows the resource estimates reported for a 0.2% Cu cut-off to make them consistent with the other deposits.

**Table 19: Mineral Resources for the Florence Bore Deposits**

<b>0.5% Cu cut-off</b>						
<b>Deposit</b>	<b>Category</b>	<b>Mt</b>	<b>Cu %</b>	<b>Au g/t</b>	<b>Cu (Kt)</b>	<b>Au Kozs</b>
<b>FBN</b>	Inferred	1.1	0.81	0.15	9.0	5.4
<b>FBS1</b>	Inferred	0.5	0.68	0.14	3.4	2.2
<b>Total</b>	Inferred	1.6	0.77	0.15	12.4	7.6

<b>0.2% Cu cut-off</b>						
<b>Deposit</b>	<b>Category</b>	<b>Mt</b>	<b>Cu %</b>	<b>Au g/t</b>	<b>Cu (Kt)</b>	<b>Au Kozs</b>
<b>FBN</b>	Inferred	2.1	0.59	0.11	12.7	7.3
<b>FBS1</b>	Inferred	1.5	0.46	0.09	6.9	4.4
<b>Total</b>	Inferred	3.6	0.54	0.1	19.6	11.7

A total of 35 RC and 3 DD holes were completed for a total of 5,408m and amounting to 2,098 assay samples, generally of 1m length. Mineral wireframes were developed for both deposits at a nominal 0.1% Cu cut-off. Dimensions of both deposits were approximately of the order of 400m of strike, 190m down dip with thicknesses ranging from a few metres to 45m. A total of 618 1m composites were extracted from the drillhole database using the mineral wireframes. No top cutting was applied to the data. Variography for the different elements was weak to moderate depending on the element.

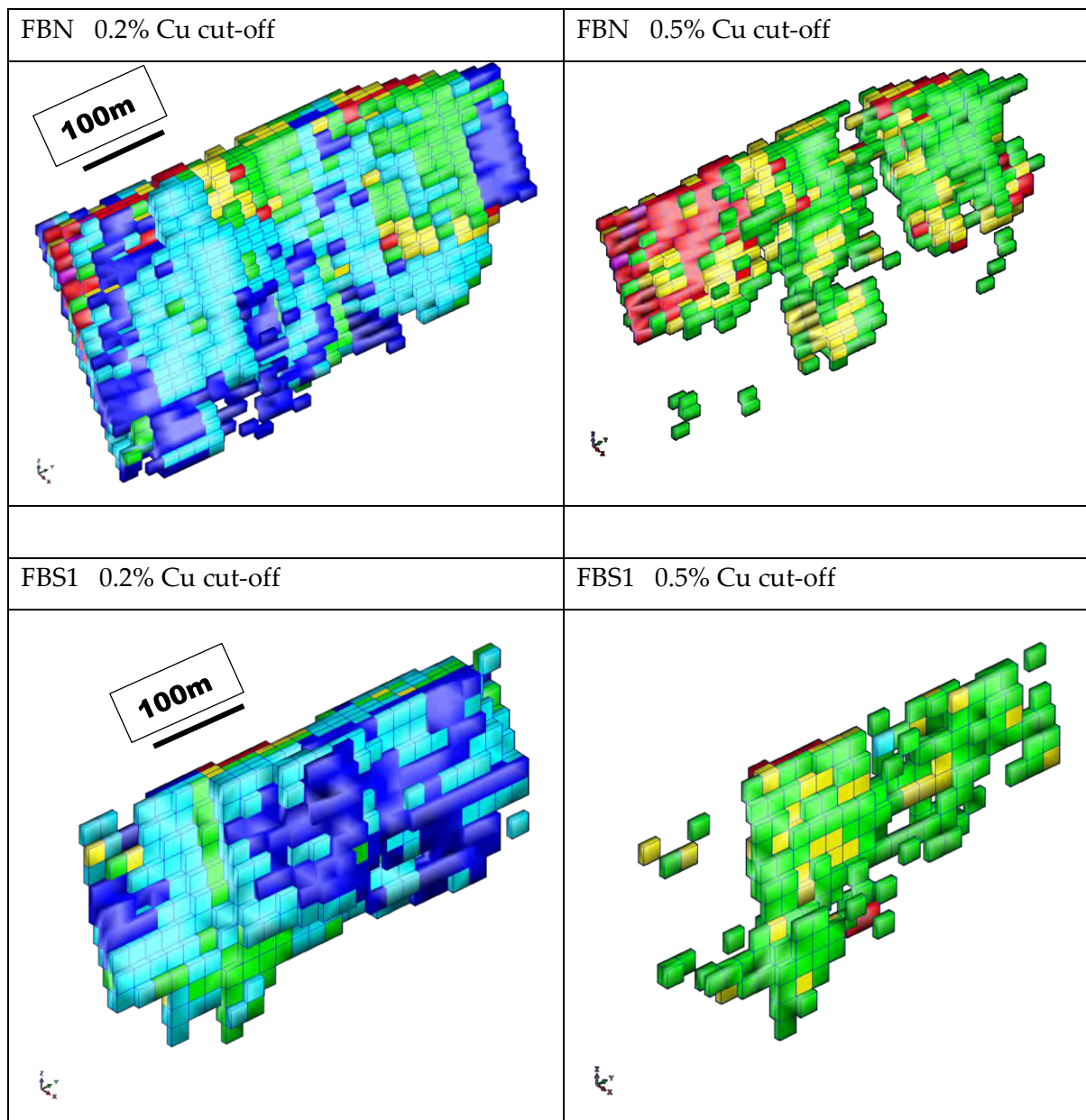
OK was used to interpolate block grades for copper and gold with block sizes 5m by 15m by 10m (X, Y & Z) for FBN and 5m by 15m by 15m for FBS1. A two pass search strategy was used with search ellipses beginning at 10m by 55m by 55m (X, Y & Z) increasing to 20m by 110m by 110m with the initial minimum number of data being 16 decreasing to 8 and the minimum number of drillholes starting at 4 and reducing to 2. The wireframes were treated as hard boundaries.

Reporting of the resource estimates used a 0.5% copper cut-off with a partial percent volume adjustment for the relevant mineral wireframe. No density data was available and default values were used in the resource estimation based on rock type and level of oxidation.

All Mineral Resources were classified as Inferred based on the wide drillhole spacing, the geological model, the lack of density data and the lack of grade continuity. H&SC was advised by the client at the time that it plans to mine the deposits in an open pit scenario and the Mineral Resources have been classified in part on this assumption.

Figure 47 is an example of the copper block distribution for the Florence Bore deposits for a 0.2% and 0.5% copper cut-off.





**Figure 47: Copper Block Grade Distribution for the Florence Bore Deposits**

*(view looking down to grid NW)*

#### 6.4.8.4 Exploration Opportunities

There are two components to the exploration opportunities for the Florence Bore deposits. The first is the brownfields opportunity which aims to upgrade and possibly extend the current Mineral Resources with a series of validation and exploratory holes. This might include locating immediate satellite mineralisation to the main body of mineralisation. The second opportunity is to move slightly further afield and test areas of favourable geoscientific data e.g. coincident copper surface geochemistry and structural/lithological settings.

Exploration potential for both deposits consists of possible strike extensions to the mineral structure. In addition there is a wide zone of low-grade copper mineralisation associated with the footwall host in FBS1 which remains open due to a lack of surrounding drilling.

FBN and FBS1 comprise relatively small Mineral Resources that are associated with conductivity (SAM) anomalies (Figure 48). Several other strong conductors have been

identified nearby, some with significant drill intersections and these have real potential for the identification of further mineral deposit discoveries.

The potential for Rare Earths has been looked into by H&SC but a relative lack of data meant inclusion of the data for a resource estimation was not possible for FBN. The assay data for FBS1 are encouraging but again a lack of data precludes any identification of a Mineral Resource.

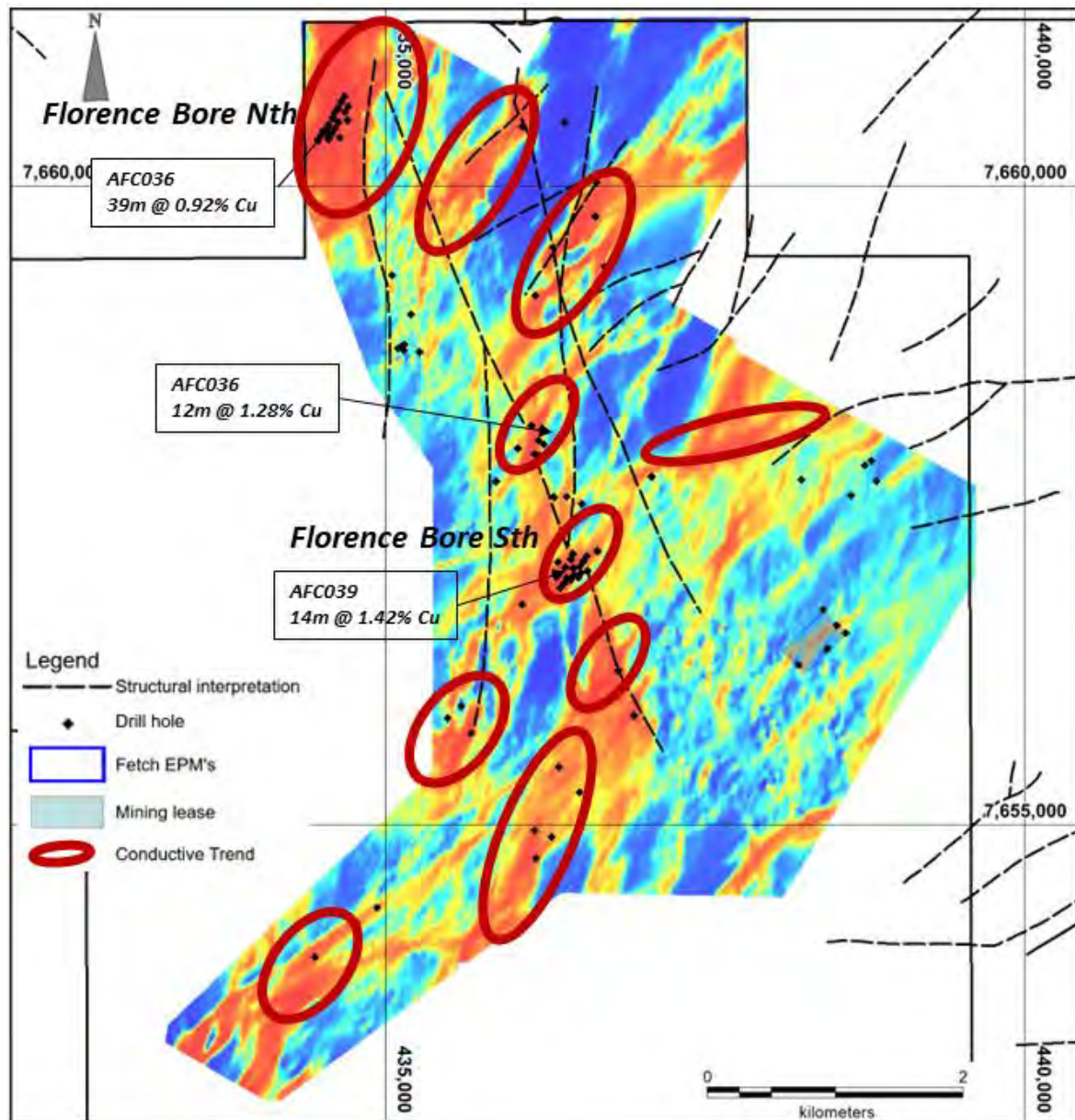


Figure 48: Exploration Target Map for Florence Bore Area

#### 6.4.9 Other Exploration Targets

The White Range Copper Project offers both brownfields and greenfields exploration targets, away from the existing Mineral Resources.

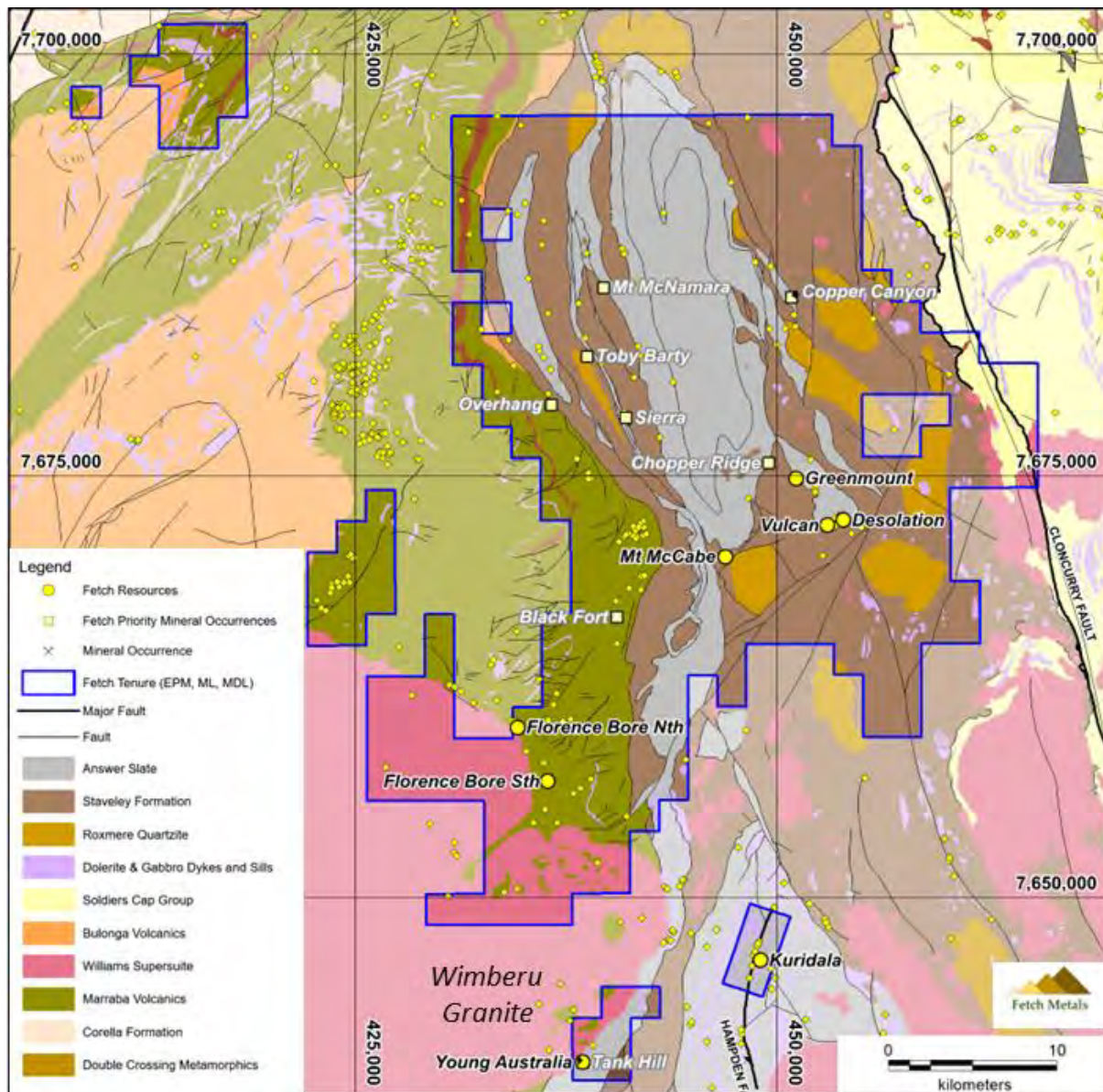
Fetch intend to investigate several high priority areas in the immediate future. The application of modern exploration techniques on some of these advanced prospect areas could



lead to the definition of new Mineral Resources, which will enhance the overall economic viability of the project area.

Figure 49 highlights both the current Mineral Resources and other significant occurrences of copper and copper/gold mineralisation for the White Range Project.

The figure shows most of the deposits are associated with the Answer Slate/Staveley Formation contact especially where there are kinks in the contact. These kinks are potentially indications of fold axes and possible dilation zones suitable for hosting structurally-controlled copper mineralisation.



**Figure 49: White Range Copper Project Mineral Deposits and Prospects**

The following represents some of the more promising prospects but by no means is the listing exhaustive.



#### 6.4.9.1 Tank Hill

The Tank Hill prospect is a line of cupriferous gossans parallel to the strike of the interpreted mineralisation and anomalism associated with the Young Australian deposit. The gossan line is approximately 300m to the southeast of the Young Australian anomalism (Figure 50). The Tank Hill gossans have been drilled in several locations with significant copper intercepts being recorded e.g. 60m @ 1% Cu in hole YA15RC36 and 23m @ 1% Cu in hole YA15RC34 (QMC 2015 RC drilling).

The stratigraphy of Tank Hill is considered to be a structural repetition of the Young Australian mineral system and also appears to have been offset by faulting. Fetch considers there to be significant untested strike potential to the NE and under cover to the SW.

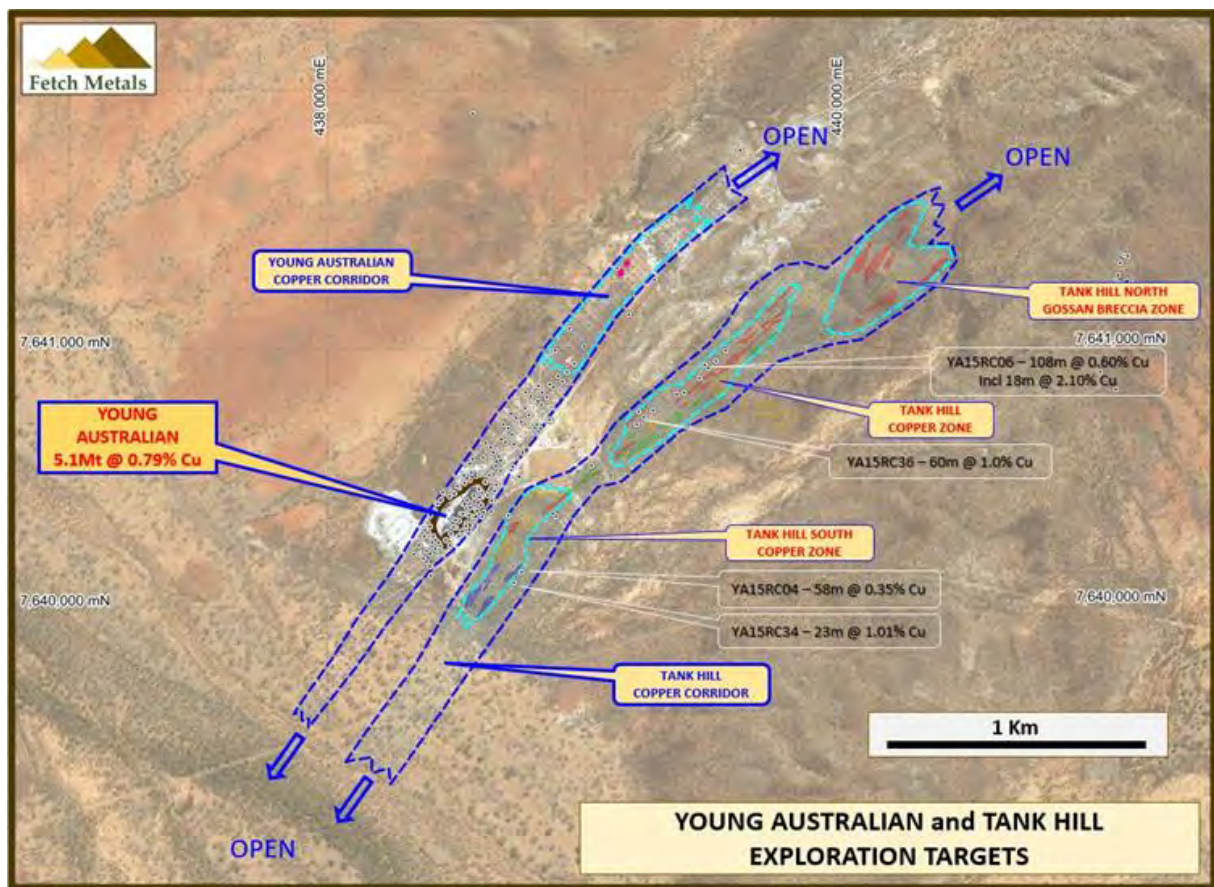
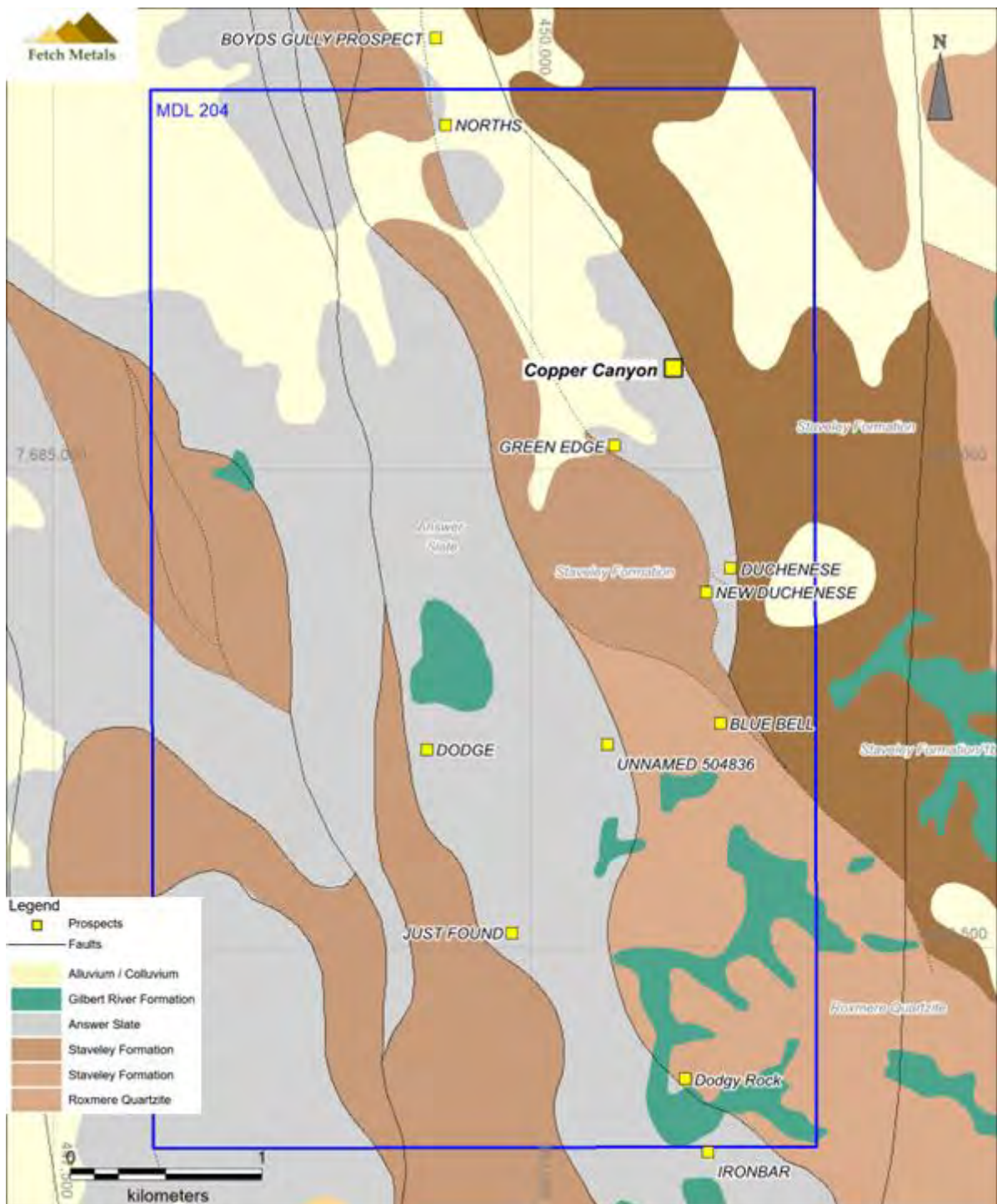


Figure 50: Exploration Target Map for Tank Hill Area

#### 6.4.9.2 Copper Canyon

Copper Canyon is situated 8 km north of Greenmount and lies on MDL 204. Figure 51 shows the geology map and copper mineral occurrences for the MDL, which is considered highly prospective for copper, gold and cobalt. It should be noted that several of the copper prospects, within a 3.5km radius to Copper Canyon, are proximal to the Answer Slate/Stavely Fm contact, generally hosted in the Answer Slate as seen at Greenmount.



**Figure 51: Geology Map for the Copper Canyon MDL**

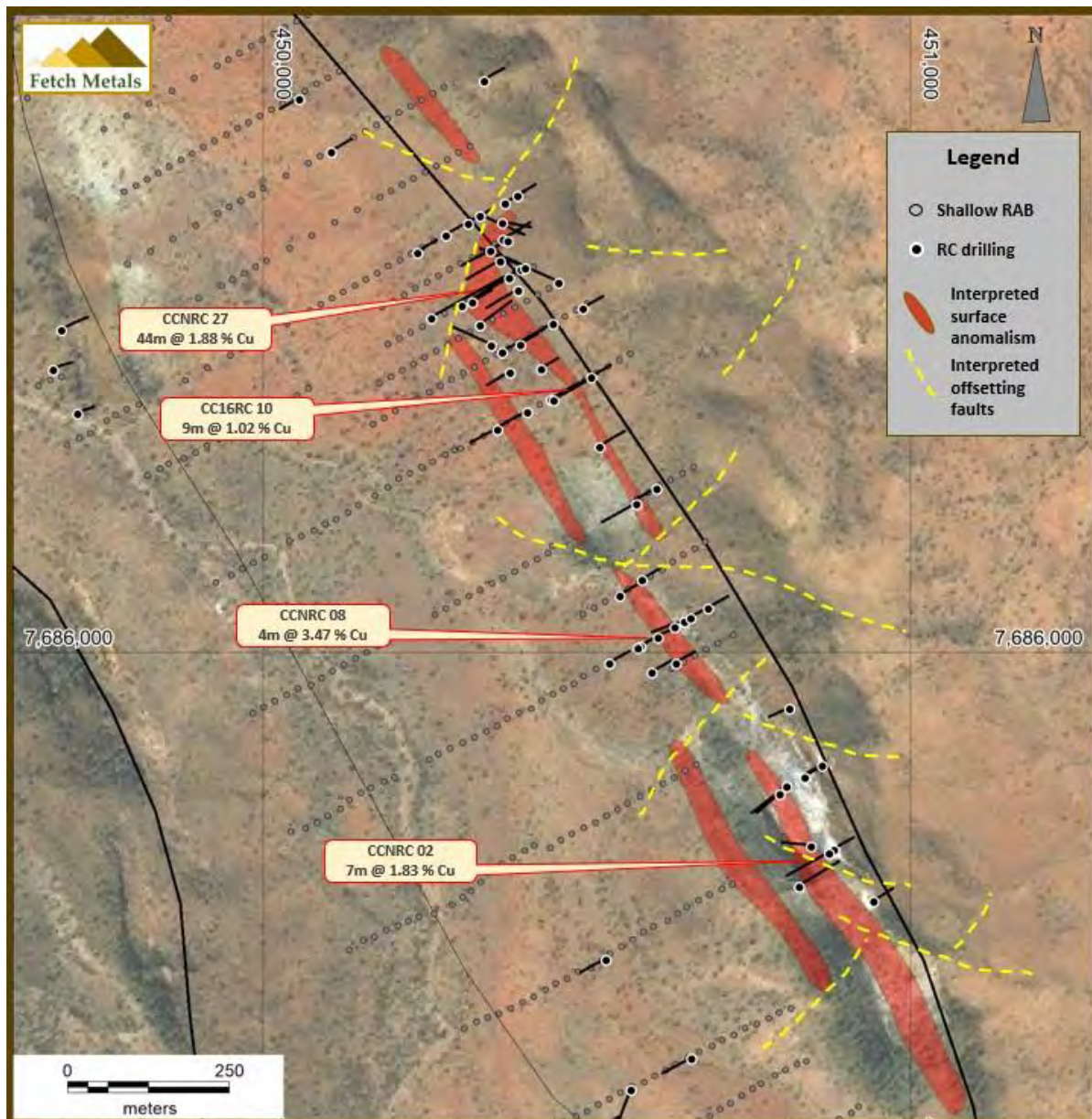
The Copper Canyon prospect is defined by a >1,200m surface copper geochemical anomaly and is spatially associated with the Answer Slate/Staveley Fm contact.

69 RC holes have been drilled at Copper Canyon for 5,934m, with the best drilling returning 4m @ 3.47% Cu, 1.47 g/t Au from 51m in hole CCONRC08. This hole was terminated at 55m in mineralisation. Some of the historic drillholes were only assayed for gold and not copper, and many older holes were not assayed for cobalt.

Figure 52 shows the exploration potential for the Copper Canyon deposit. The exploration opportunities are:



1. Along strike from already intersected mineralisation, particularly if the structural controls have resulted in plunging ore shoots.
2. There are untested RAB and soil geochemical anomalies to the west of the main line of lode.



**Figure 52: Exploration Target Map for Copper Canyon Area**

#### 6.4.9.3 Other Areas

Figure 53 displays other copper mineral occurrences on a geological backdrop within the White Range tenements that are worthy of mention.

1. Toby Barty lies 12km NW of Greenmount with previous QMC drilling intersecting 21m at 2.8% Cu with the strike potential remaining untested.
2. Black Fort lies 12km SW of Greenmount with previous QMC drilling intersecting 17m at 1.5% Cu associated with a 1km long structural zone characterised by anomalous surface copper geochemistry.



3. Chopper Ridge lies 2km NW of Greenmount with historic drilling recording 7m at 1.6g/t Au associated with a 3.5km long copper soil anomaly.

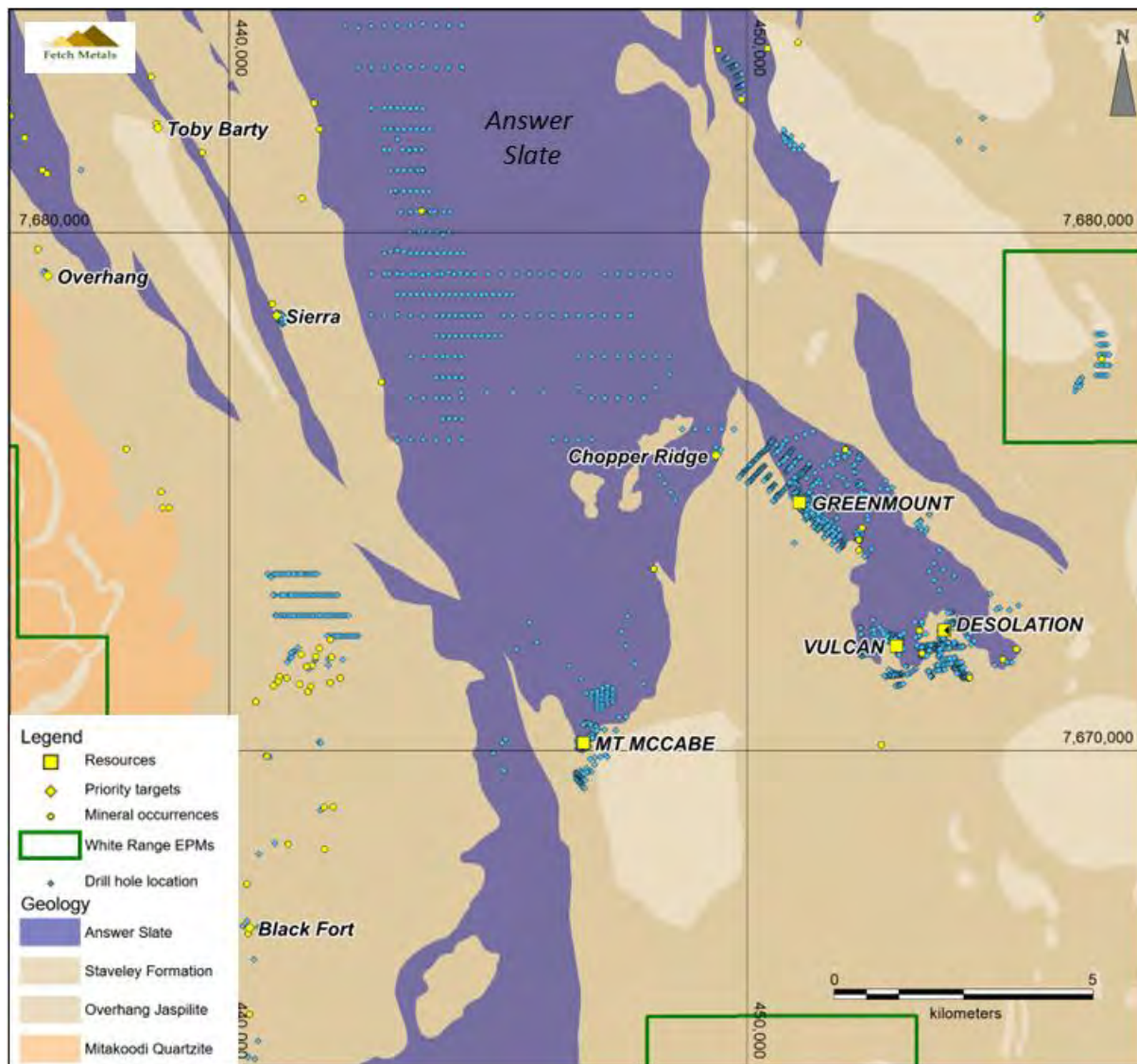


Figure 53: White Range Project Other Exploration Targets

## 6.5 Conclusions, Recommendations & Proposed Budget

The most prospective project Fetch controls in the Cloncurry region is the White Range Project which has 8 deposits with Mineral Resources reported, 7 under the 2012 JORC Code and one under the 2004 JORC Code. The combined Mineral Resources for copper comprise some 40Mt at 0.66% Cu for 263 kilotonnes of copper metal. The Mineral Resources are considered reasonable, but no check models were completed by H&SC. With the inclusion of the proposed drilling it is recommended that check resource models are completed to confirm the appropriateness of some of the modelling techniques and that the classification of the Mineral Resources is in accordance with the 2012 JORC Code & Guidelines.

Copper occurs as structurally controlled stratabound mineralisation related to deformational structures interacting with a specific contact zone between the Staveley Fm and the Answer

Slate. This contact has approximately 65km of strike length within the Fetch tenements. The primary target exploration model is the structurally controlled copper one in association with preferential host lithologies. This generally centres around favourable structural geometries in proximity to the Answer Slate/Staveley Fm contact. Analogies can be made with Chinova's Mt Dore deposit (110Mt @ 0.55% Cu and 0.1g/t Au).

Substantial oxidation due to weathering has occurred, with penetrative depths in excess of 100m below surface in places. This may have implications for ore processing i.e. oxide vs sulphide and may result in different cut-off grades for reporting Mineral Resources.

Primary copper mineralisation comprises disseminations, blebs and veinlets of chalcopyrite. Copper mineralisation in the oxide zone consists of copper oxide secondaries like malachite and chrysocolla and copper sulphides such as covellite and chalcocite.

Fetch's proposed mining strategy is to complete both confirmatory and extensional drilling on at least 6 of the deposits with Mineral Resources in order to establish sufficient momentum for a central processing hub operation. Concurrent with this strategy would be exploratory drilling of more peripheral prospects and identified target areas aiming to increase the copper inventory of the project areas.

The area has been subject to a substantial amount of historic exploration and the regional datasets are sufficient to allow for the development of additional targets for field checking, sampling and possibly drilling.

The White Range Project deposits have several clear controls and features to mineralisation which will be utilised to guide the exploration programs over the next 2 years. There are obviously strong structural controls associated with the known economic deposits on the project and exploring in prospective lithologies located near to major fault intersections and geochemical corridors previously identified, will focus exploration efforts. It follows that within the under-explored areas outside of the known resources and advanced exploration targets held by Fetch, that there exist many opportunities for exploration success. A systematic and targeted reconnaissance, mapping and sampling program investigating the contacts along the Answer Slate will be undertaken as a priority.

The majority of the exploration budget of \$7M for the first two years is earmarked for expenditure on the White Range Project (Figure 54) with the intention of adding additional resources from peripheral areas to the copper inventory as soon as possible. Smaller scale exploration programs are planned for Levuka South (mapping, gravity, RC drilling) and Sandy Creek (mapping, RC drilling) during this time period

Outside of the main deposits, the priority exploration prospects are Florence Bore, Copper Canyon and Tank Hill. These target areas will be subject to a combination of HQ diamond core drilling (5,500m) in conjunction with RC drilling (9,000m) into known mineralised areas and also along postulated strike extensions. Additional prospects are planned to be brought to drill testing stage as rapidly as possible.

Ground geophysical programs including ground gravity and possibly Moving Loop Electromagnetic (MLEM) surveys and Down Hole Electromagnetic (DHEM) surveys are planned to be utilised where they are deemed warranted.

All available geophysical and geological data has been acquired with reprocessing of the data well advanced. A project scale compilation of the magnetics, gravity, radiometrics has been

completed, and the review and inversion of historic airborne EM surveys over the company's tenement holding is currently in progress.

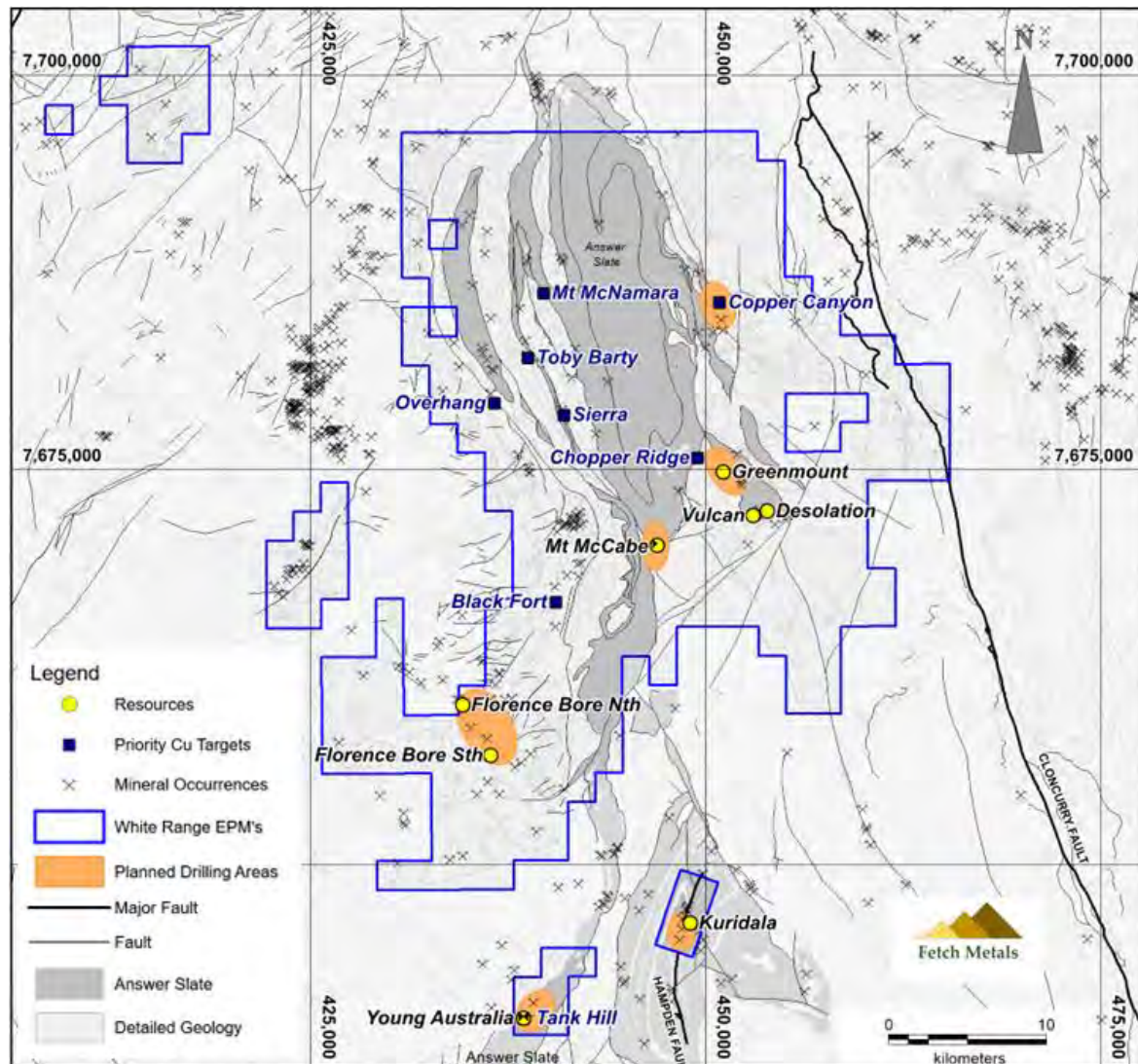


Figure 54: Initial Planned RC & Diamond Drilling Program for the White Range Project.



The planned exploration activities and budgets are listed in Table 20.

**Table 20: White Range Project Exploration Budget**

<b>White Range Project</b>			
<b>Category</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Total</b>
Tenement rent	\$59,000	\$59,000	\$118,000
Geophysical survey & inversion	\$70,000	\$90,000	\$160,000
RC drilling (16,000)	\$900,000	\$1,344,000	\$2,240,000
Diamond drilling (10,000m)	\$1,114,000	\$1,672,000	\$2,786,000
AC Drilling	\$0	\$168,000	\$168,000
Geochemical Targeting Study	\$30,000	\$0	\$30,000
Geological Studies / Consultants	\$40,000	\$40,000	\$80,000
Data management & reporting	\$50,000	\$50,000	\$100,000
Earthworks & rehabilitation	\$89,000	\$141,000	\$230,000
<b>Total</b>	<b>\$2,352,000</b>	<b>\$3,564,000</b>	<b>\$5,921,000</b>

H&SC considers the exploration program and expenditure fully justified.

## 7 Sandy Creek Gold/Copper Project

### 7.1 Introduction

The Sandy Creek Project is located approximately 140 km south of Cloncurry and is comprised of 4 semi contiguous granted EPMs 18073, 25192, 25455, 25454 (Figure 55). The EPMs represent a substantial holding within a highly prospective geological terrane, surrounded by several major deposits including Mt Dore and Selwyn. The area has significant potential for IOCG mineralisation including skarn-style mineralisation and possibly stratabound Ag-Pb-Zn mineralisation. The tenement has been notably under-explored given the long-standing history of mineral exploration within the region and substantial scope remains to make a major discovery, particularly under cover.

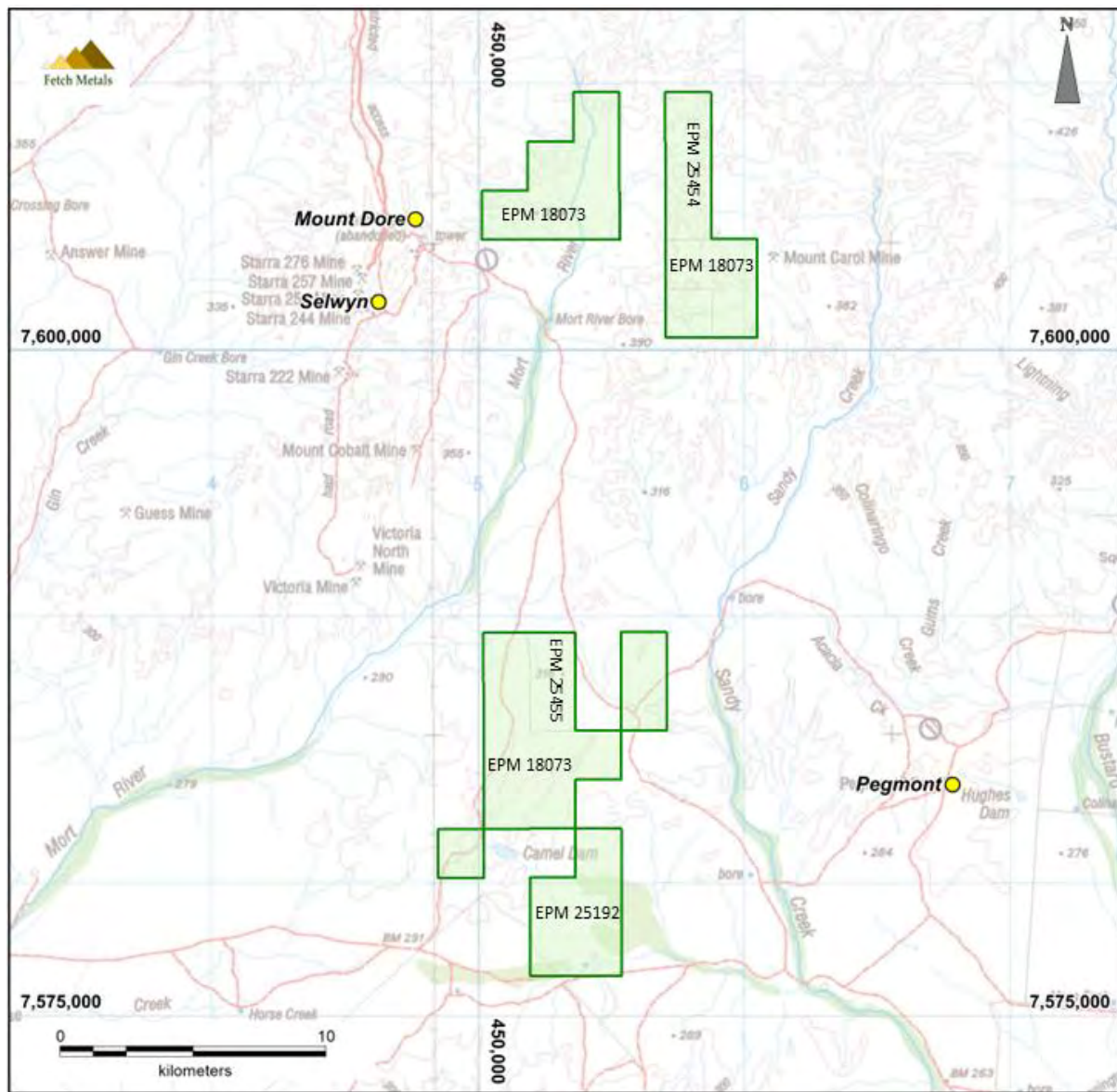
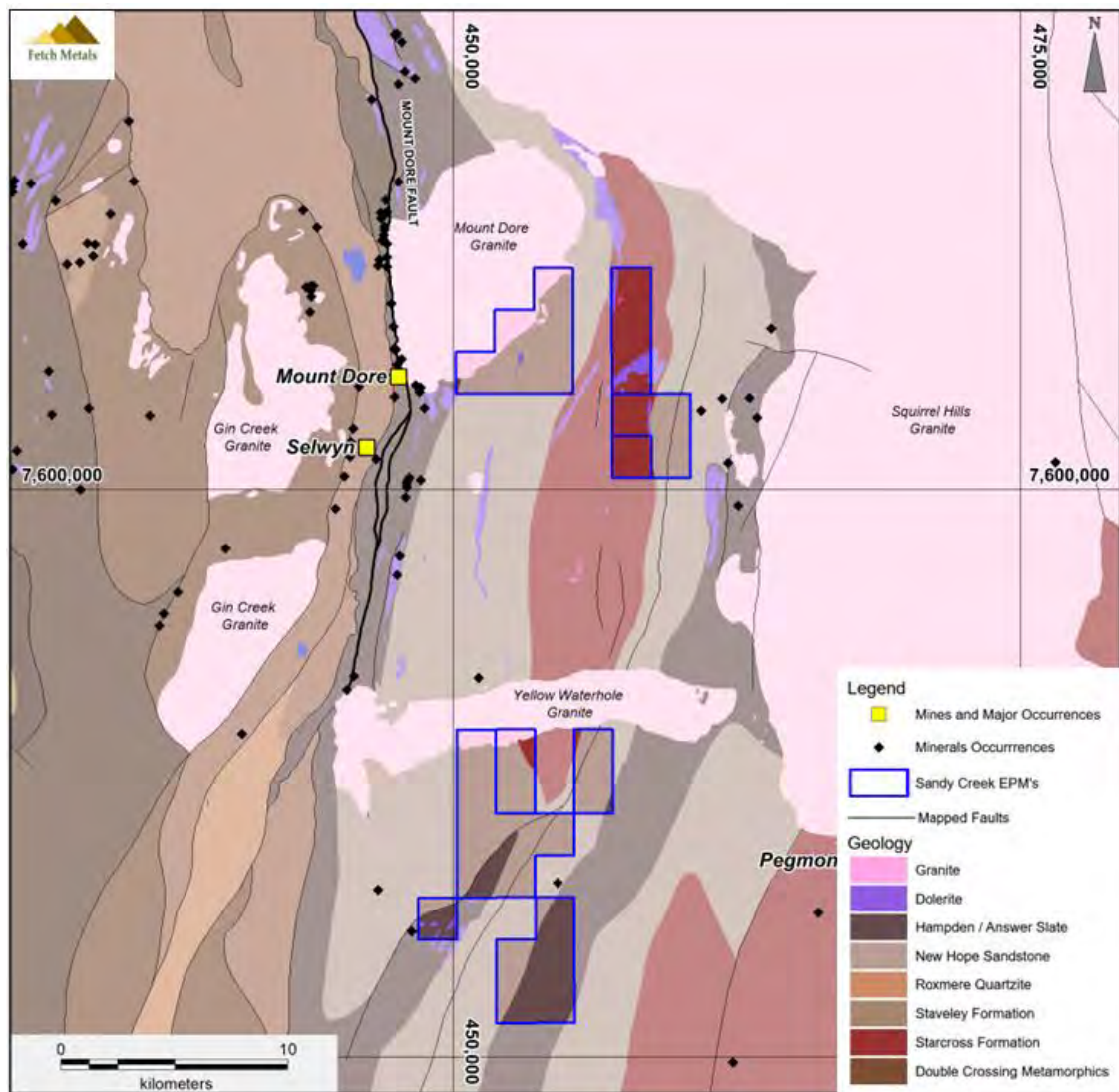


Figure 55: Sandy Creek Project Tenure on 250K Topography.

## 7.2 Geology & Mineralisation

The geology of the Sandy Creek Project area mainly consists of units from the Kuridala Group (Hampden Slate, Starcross Formation, New Hope Sandstone Member), and is covered by a suite of Mesozoic, Tertiary and Quaternary sediments (Figure 56). Proximal mineral occurrences and mines in the region are associated with NS shear structures. At Mt Dore, mineralisation is hosted by a fault bounded slice of mica schist, sandwiched between calcareous and calc-silicate rocks to the east and the Mt Dore granite to the west. Mineralisation and accompanying alteration are localised by tabular dilational breccia bodies associated with post-metamorphic and post-granite fault movement and hydrothermal alteration. Alteration comprised an early K feldspar-biotite-muscovite-quartz stage to a later dolomite-calcite-apatite-chlorite phase with pyrite, chalcopyrite and minor sphalerite-galena.



**Figure 56: Geology Map for the Sandy Creek Area**

Figure 57 shows the processed regional airborne magnetic data in relation to known mineral occurrences. The image yields substantial structural and lithological information that can be further evaluated by 3D modelling to produce an enhanced structural understanding in relation to potential mineralisation.



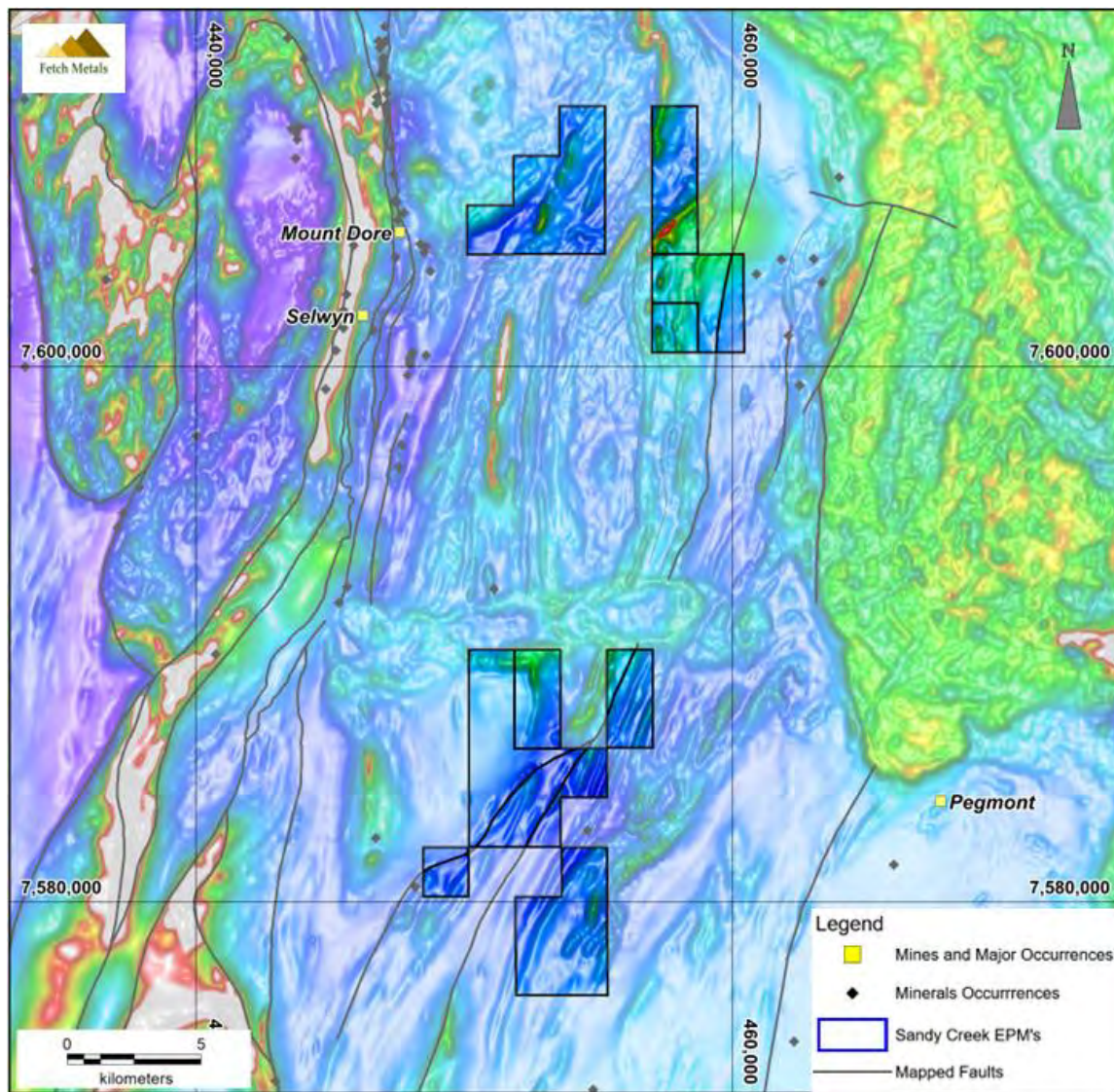


Figure 57: Tenements, Mineral Occurrences & Magnetic RTP for the Sandy Creek Project

### 7.3 Exploration and Mining History

Historic exploration in the area commenced formally in September 1967 by MIM, with the focus on discovering stratiform base-metal Pb/Zn mineralisation. Over time the focus has changed to include Cu/Au targets particularly for IOCG-type mineralisation especially since 2010, and structurally controlled copper (+gold).

Table 21 details EPMS that have existed over the area and indicates the previous exploration work.

**Table 21: Details of EPMs and Exploration Work for the Sandy Creek Project Area**

EPM No.	Company	Duration	Commodities	Work Completed	CR Number
422	Mt Isa Mines Ltd	1967-1970	Cu, Co, Au, U	streams, drilling	2494, 3463
97	Rio Tinto Australian Exploration Pty Ltd	1958-	Pb, Zn	rocks, mapping, magnetics, EM,	206, 207
908	Placer Prospecting (Aust) Pty Ltd	1970-1971	Pb, Zn, Ag, Cu	rocks, soils, mapping, EM	4011
423	Australian Selection Pty Ltd	1967-1969	Zn, Pb, Cu	rocks, soils, mapping, magnetics, EM	2903
1265	Newmont Pty Ltd Minimp Pty Ltd	1973-1975	Cu, Pb-Zn-Ag.		4853, 5035, 5349, 5436
1334	Newmont Pty Ltd ICI Aust Ltd Dampier Mining Co Ltd	1973-1975	Pb, Zn, Ag, Cu	Rocks, mapping, magnetics, IP, EM, drilling	5276
1266	Newmont Pty Ltd ICI Aust Ltd	1973-1975	Pb, Zn, Ag, Cu	rocks, mapping, magnetics,	5034
1454	Newmont Pty Ltd ICI Aust Ltd Dampier Mining Co Ltd	1974-1977	Phosphorite	EM	5430
1552	Newmont Pty Ltd ICI Aust Ltd Dampier Mining Co Ltd	1975-1977	Pb, Zn, Ag		5764, 6038
1822	Amoco Minerals Aust Co	1977-1982	U, Cu, Au, Ag, Pb	Drilling, mapping, sampling	11215, 6441, 6755, 7120, 7562
1580	Occidental Minerals Corp of Aust	1975-1976	Pb, Zn, Ag	streams, rocks, mapping	5824
3370	Amoco Minerals Aust Co	1984-1990	Cu, Au, Pb, Zn, Ag, Co	Mapping, magnetics, drilling	13596, 17384, 21922
1824	Amoco Minerals Aust Co	1979	Cu, Au, U	rocks, soils, mapping, magnetics, drilling	7859
3658	Mt Isa Mines Ltd	1984	Au, Cu, Base-metal		13690
3702	CSR Ltd	1984-1988	Pb, Zn, Ag, Au, Cu	Rock chips, soils, streams drilling	15526, 17659
3990	CSR Ltd	1985-1990	Pb, Zn, Au, Cu	Streams, rockchips	16395, 18616, 20830, 22173
4571	Roebuck Resources N.L.	1987	Au	rockchips	16226
4248	Placer Exploration Ltd	1990	Au, Cu	magnetics	22221
9211	Ballarat Goldfields N.L.	1993-1994	Au	Stream, rocks, mapping, ground mag,	25356, 26159
5329	Placer Exploration Ltd	1989-1992	Au	streams, rockchips, soils,	22938, 23255, 24455
5413		1988	Au, Cu, base-metals	stream, rock, mapping	19040
5972	Metana Minerals N.L.	1989-1990	Cu, Pb, Zn, Ag, Co	rocks,	20898
6029	Freehold Mining N.L.	1998-2003	Base-metals	stream, rocks, soils, drilling	31070, 32147, 32993, 33253, 34275
8864	Shell Co of Aust Ltd	1992-1993	Pb, Zn, Ag and Cu-Au	rocks, magnetics	24637
8913	Delta Gold Exploration Pty Ltd	1992-1995	Ag, Co, Cu, Pb, Zn, Au	Streams, rocks, soils, mapping, drilling, ground magnetics	26270, 24773, 27125, 27575
13741	Ivanhoe Cloncurry Mines Pty Ltd	2003-2013	Cu, Au, Pb, Zn, Ag, U	rocks, magnetics, drilling	75199
9644	Placer Exploration Ltd	1993-1998	Au-Cu	Streams, rocks, soils, mapping, air and	26653, 26943, 28275, 28507, 29643, 30553



				ground magnetics, EM, drilling	
9851	Battle Mountain (Aust) Inc.	1994-1998	Au-Cu and base metals	streams, rocks, soils, mapping, airmag, radiometrics, IP, EM, drilling	29686, 29687, 30672, 26760, 27710, 27743
10783	Arimco Mining Pty Ltd / Chinova / Selwyn	1997-2000	Au-Ag	stream, rock, soils, drilling	30633, 94875, 33142
11676	Exco Resources Ltd /Inova Resources Cloncurry Mines Pty Ltd/Ivanhoe Cloncurry Mines Pty Ltd	2005-2012	Cu, Au, Zn, Ag	Streams, rocks, soils, mapping, magnetics,	54552
12656	Fusion Resources Pty Ltd/Pegmont Mines Ltd / Newmont Gold Exploration Pty Ltd	2004-2011	Cu, Au, U, base metals	Streams, rock, soils, mapping, magnetics, EM, Drilling	59893
14491	Pegmont Mines Ltd	2006-2013	Au, Co, Pb, Zn	Rocks, soils, drilling	53394, 77477, 79715
15106	Pegmont Mines Ltd	2009-2013	Au, Cu, Co, Mo, REE, Pb, Zn	rocks, streams, gravity, magnetics, drilling	65479, 79225

The relatively flat topography and lack of outcrop across the project area has tended to inhibit any exploration despite the abundance of historic EPMs existing over the area. Surface geochemical sampling has been restricted to areas of outcrop mainly ironstones, gossans or carbonaceous ± graphitic shales within the Starcross Formation or the Hampden Slate.

Figure 58 is a compilation of historic exploration work completed on the EPM. It highlights the soil and rock chip sampling as being limited to small grids, whilst the stream sediment sampling is rather sparse. The abundance of cover would suggest geophysical methods as being more appropriate for ore-finding. A review of the geophysical data for the region has shown it to be more effective in identifying mineralised targets, examples include Pegmont & Osborne.

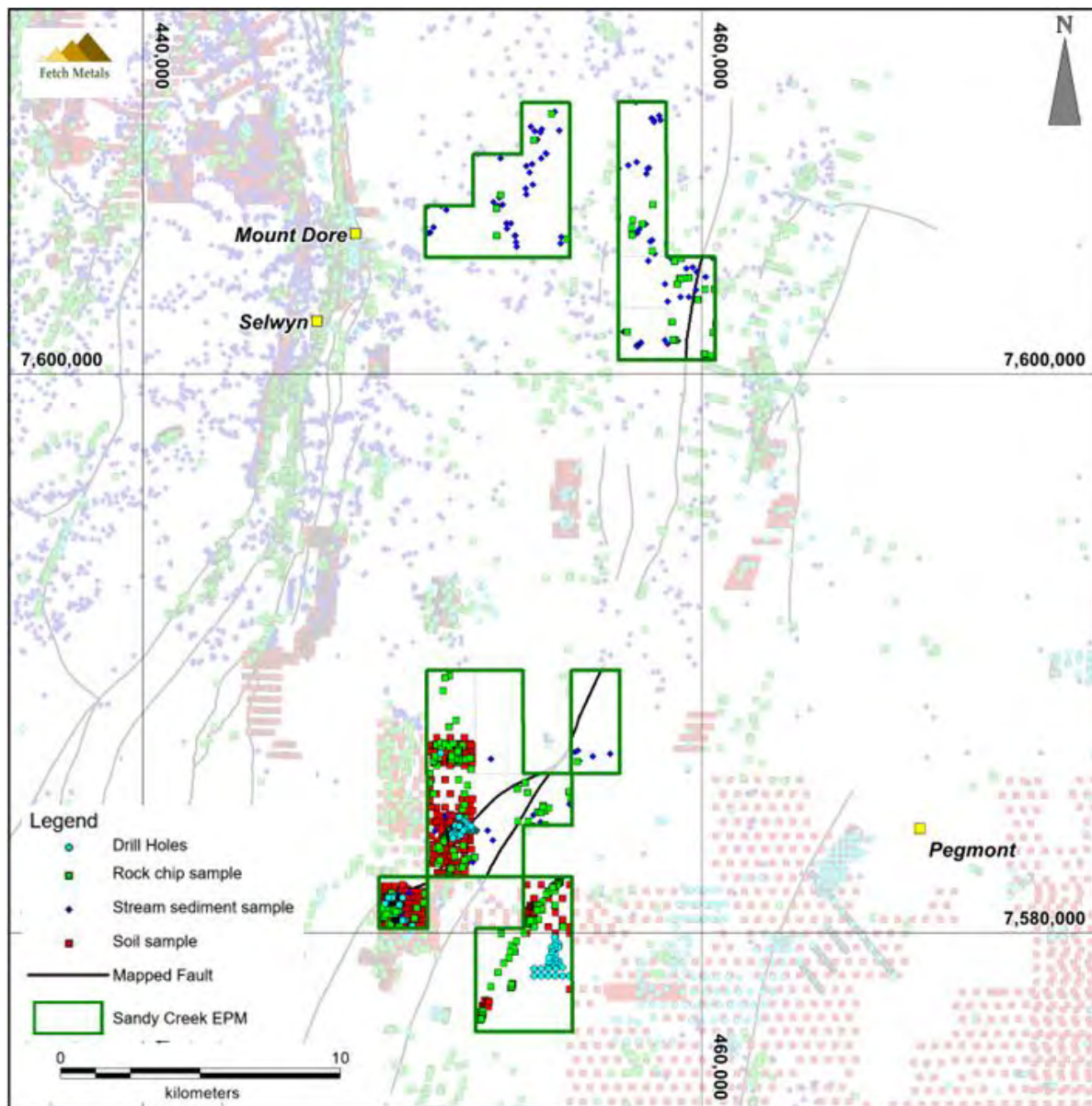


Figure 58: Work Done Map for the Sandy Creek Area

## 7.4 Exploration Opportunities

The primary exploration target model is for IOCG-type deposits which are well known in the general region. A secondary target model is the stratabound Pb/Zn mineralisation as seen at Cannington, Pegmont and Maronan. Both types of deposit have notable geophysical signatures which in conjunction with a revitalised structural interpretation for the area will be the main driver of the exploration work.

Opportunity exists in the area to further explore areas beneath cover. Previous explorers including Rio Tinto Exploration, Perilya & Ivanhoe Cloncurry Mines have identified mineral occurrences around the Killer Bore, Anitra, Concorde, Blue Ridge and Blue Flat prospects.

The initial exploration by Fetch will comprise reviewing the compiled regional geophysics. This is anticipated to allow for improvement of the existing structural interpretations for the

area to assist in developing a better understanding of the mode of emplacement for the known mineral occurrences. Previous structural analysis of magnetic and radiometric data highlighted a spatial association with well-developed NW and NE orientated structures resulting from compression during the Isan Orogeny at the start of the Mesoproterozoic.

Studies assessing the favourability of structures to host mineralisation, have identified bends and jogs to be among the most efficient means of providing optimal dilation and fluid migration (Mann et al., 1983; Ford et al., 2009). Fault width and host lithology contrasts also provide an ideal environment to host mineralisation. Intersecting faults do not allow maximum dilation but do focus fluid into a restricted conduit rather than allowing an extensive strike length and this could assist in developing a confined, highly concentrated mineral deposit. More work needs to be done to extract these features in more detail for the Sandy Creek EPMS. This will highlight major structural deviations and other prospective structural features that can assist in prospect ranking and identifying viable drill targets.

Figure 59 shows the Bouguer gravity image as a backdrop to initially proposed target areas, which have been derived from the structural review of the compiled geophysical datasets.

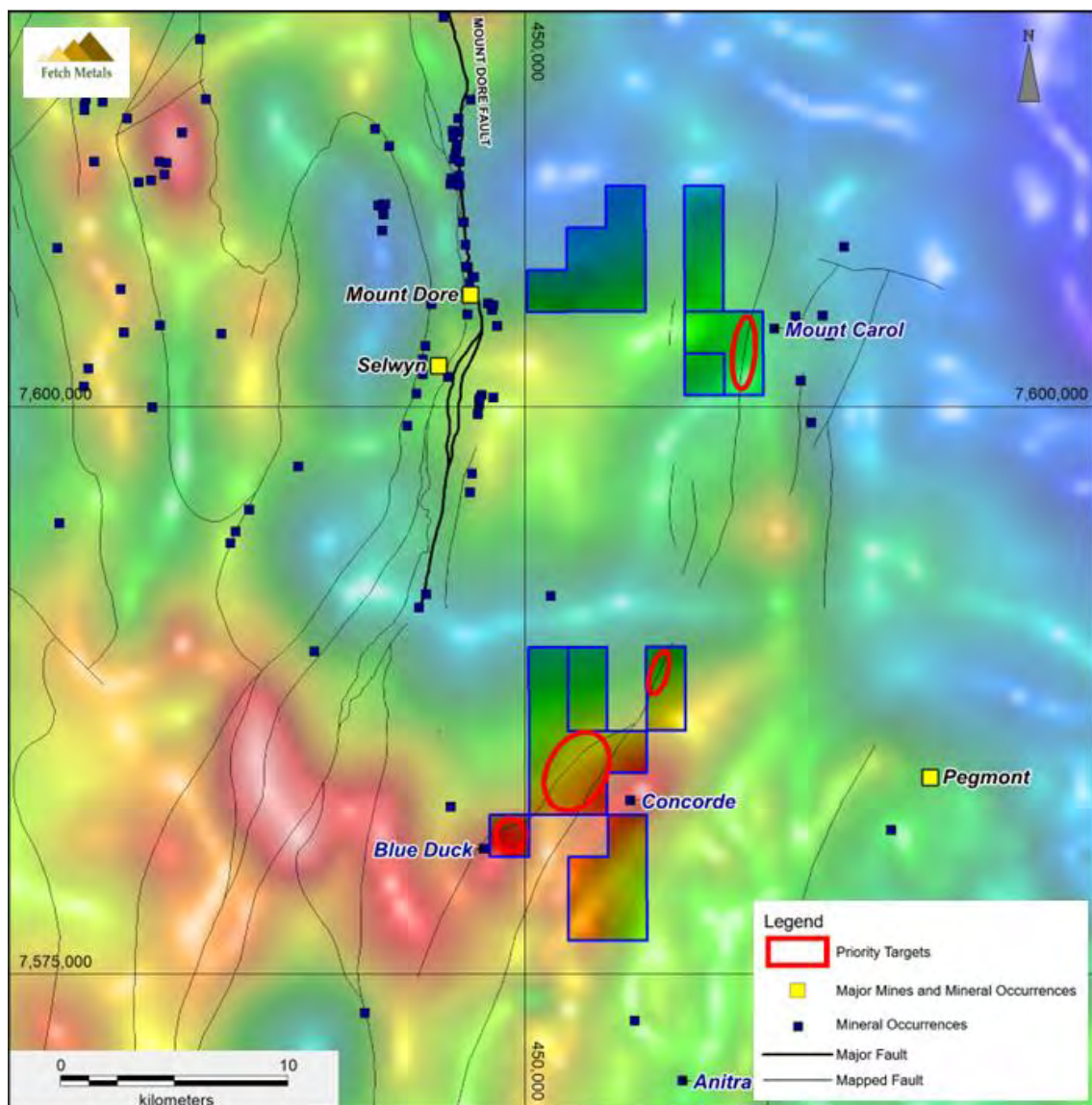


Figure 59: Exploration Target Map for the Sandy Creek EPMS



## 7.5 Conclusions & Recommendations

The Sandy Creek Project is located in a favourable geological setting for the discovery of significant IOCG and/or BHT Zn-Pb-Ag mineralisation. The tenement has been notably under-explored given the long-standing history of mineral exploration within the region and substantial scope remains to make a major discovery, particularly under cover.

Initial work will comprise a data compilation exercise and a review of the geophysical data including 3D modelling. This will then be used to identify favourable structural positions for follow up work which is likely to be ground geophysics e.g. gravity and possibly reconnaissance drilling, depending on the levels of success.

## 7.6 Programmes & Budget for the Sandy Creek Project

The EPMs covering Sandy Creek has numerous gold and copper targets worthy of follow up. Any anomalous areas defined by previous explorers should be re-assessed.

The planned exploration activities and budgets are listed in Table 22.

**Table 22: Sandy Creek Project Exploration Budget**

Sandy Creek Project			
Category	Year 1	Year 2	Total
Tenement Rent	\$5,000	\$5,000	\$10,000
Digital Modelling and Drill Planning	\$8,000	\$8,000	\$16,000
Geophysics Review / Planning	\$10,000	\$10,000	\$20,000
Ground Gravity Program	\$14,000	-	\$14,000
Drilling (600m RC)	-	\$84,000	\$84,000
<b>Total</b>	<b>\$37,000</b>	<b>\$107,000</b>	<b>\$144,000</b>

H&SC considers the program and expenditure fully justified.

# 8 Levuka South Copper Project

## 8.1 Introduction

The Levuka South Project is located approximately 65 km southeast of Cloncurry and comprises EPMs 18663 & 26011. Fetch plan to explore for structurally-controlled copper-gold systems, IOCG-type and/or BHT-Cannington-style Ag-Pb-Zn mineralisation. The EPMs are 15 to 30km along strike to the south of the Eloise Cu Mine and Demetallica's Jericho Cu Prospect (Figure 60). The Eloise deposit was discovered by BHP Minerals in 1986 during follow up diamond drilling of EM anomalies associated with major aeromagnetic anomalies.

The project area is almost entirely covered by younger sediments related to the Georgina Basin. As a result historic exploration has been mostly limited to geophysical surveys and limited drilling.

Fetch considers the Levuka South Project to hold significant greenfield exploration potential.

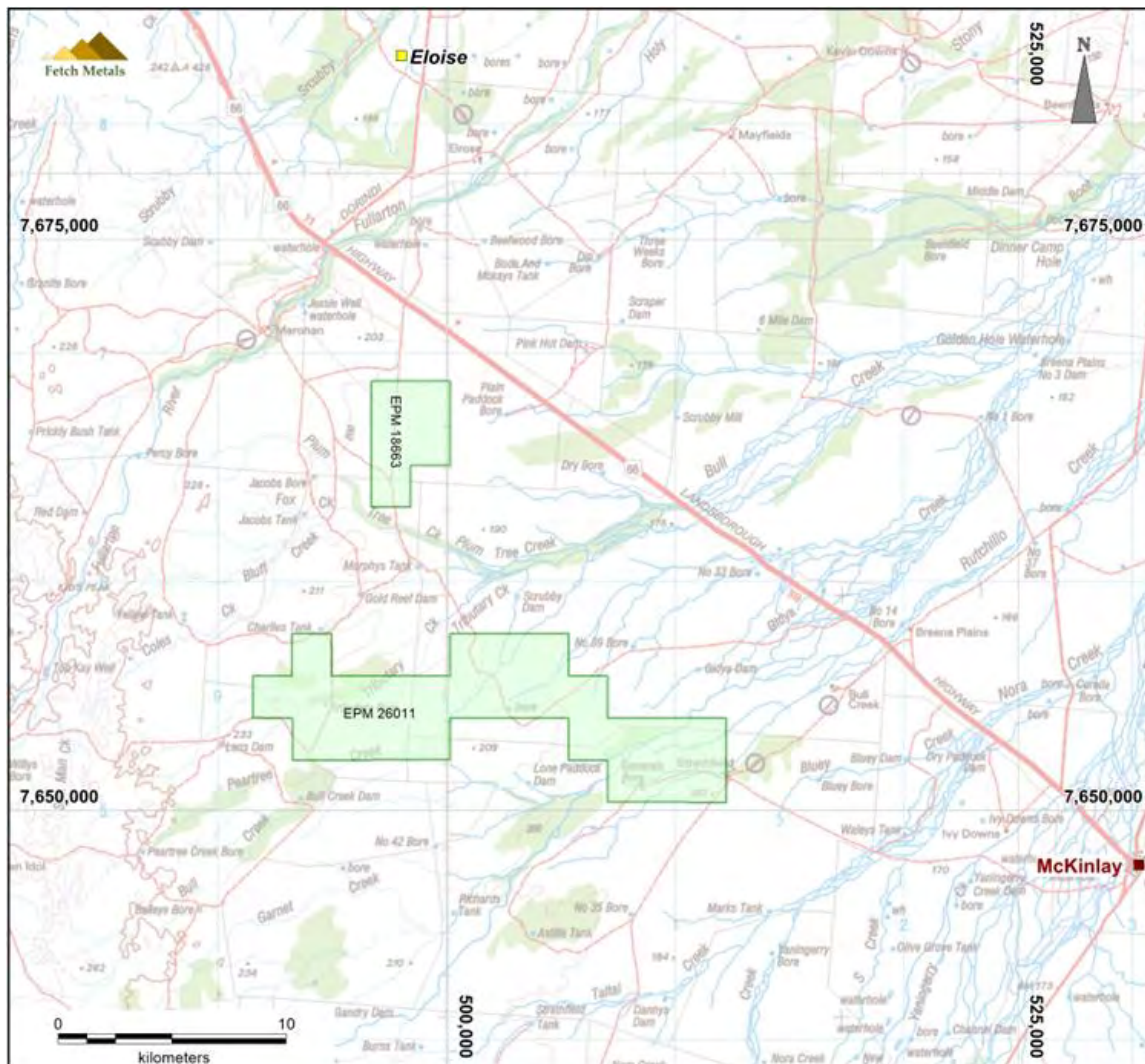


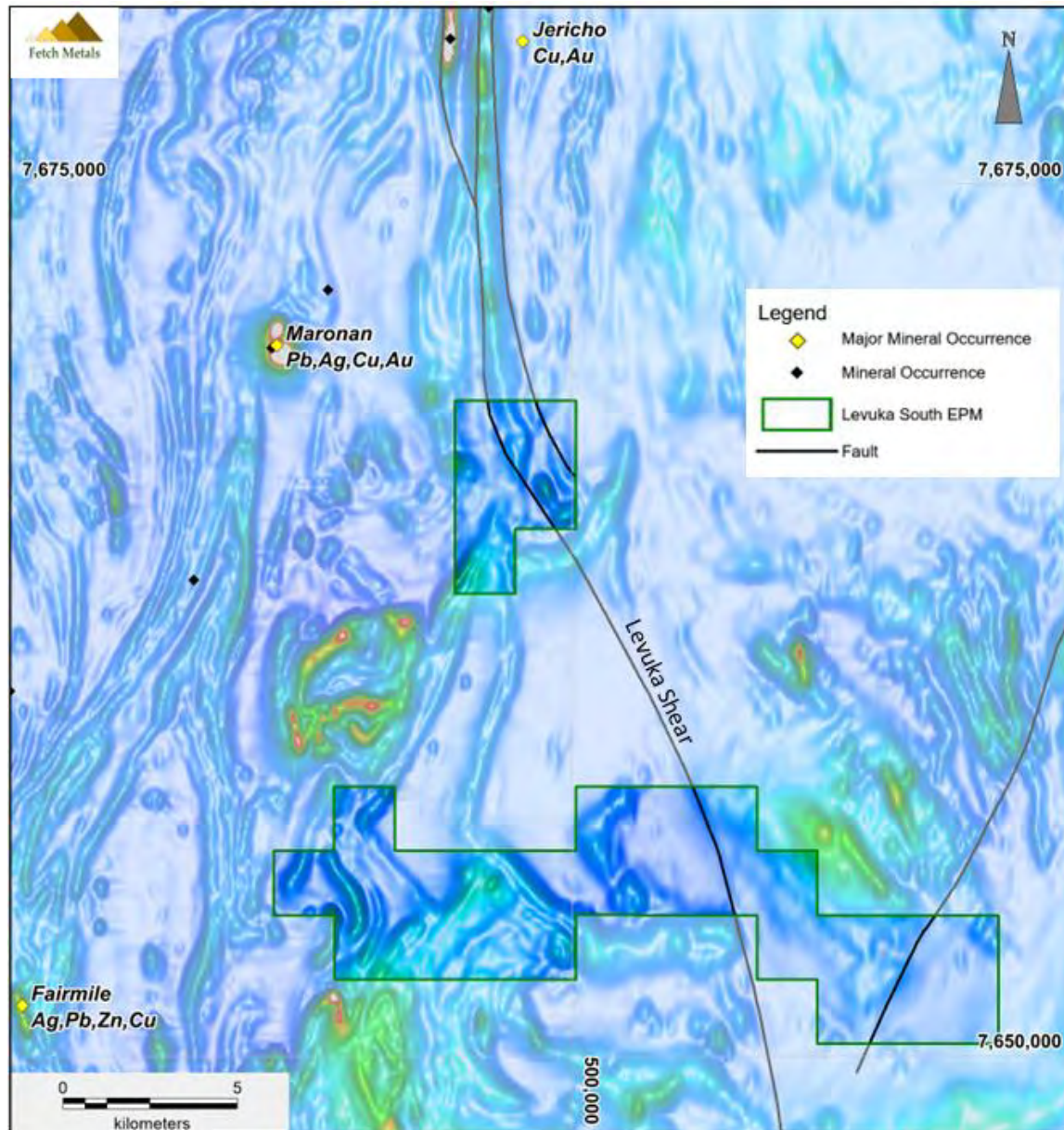
Figure 60: Levuka South Project Tenure on 250K Topography.

## 8.2 Geology & Mineralisation

The project area is covered by Cretaceous sediments to a depth of approximately 60m as determined by previous drilling. Interpretation of open-file aeromagnetic and drilling data indicate that the area is underlain by the Soldiers Cap Group of the EFB.

The aeromagnetic data shows that the EPMs are underlain by a distinctive north-striking sequence of highly magnetic rocks regarded as the “Levuka Trend” (Figure 61). This structural trend extends north to the high-grade Eloise Cu/Au deposit but appears to have a southern termination within the tenement area where several short strike-length magnetic features are present.

The Soldiers Cap Group comprises a strongly foliated meta-sedimentary sequence of Mid Proterozoic rocks. The lithologies include interlayered meta-arkose and quartz-biotite-schist, which also contains a coarse-grained amphibolite body possibly representing an early intrusion of gabbroic composition, and is cut by faults of various ages. The Soldiers Cap Group consists of three units, namely the Toole Creek volcanics (amphibolite and schist), the Mount Norna Quartzite (meta-arkose, schist, quartzite, and amphibolite), and the Llewellyn Creek Formation (psammite and schist). These rocks are also host to the Eloise Cu/Au mine and the Jericho Cu/Au deposit.



**Figure 61: Mineral Occurrences & Magnetic RTP for the Levuka South Project.**

Figure 62 shows a base-of-cover geology map for the Levuka South area. Of particular note is the NNW-SSE striking Levuka Shear, that transects both EPMS and is a continuation of the same shear zone that is intimately related to the Eloise Mine.

There are several known mineral occurrences and historic workings in the general vicinity of the Levuka South project. The most significant of these are the previously mentioned Eloise



Cu/Au mine and the Jericho Cu/Au deposit, which are located proximal to the Levuka Shear, some 15-25km along strike from the Fetch EPMS. The Maronan Pb/Zn deposit lies some 5km to the northwest of the EPMS. This deposit is interpreted to be a locally high-grade Cannington-style Ag-Pb-Zn BHT that is in close association with two parallel banded iron formation horizons.

The Eloise deposit comprises a number of steeply plunging, structurally complex mineralised zones and is characterised by very high grade chalcopyrite-pyrrhotite rich mineralisation hosted by mafic silicate alteration. High-grade (~5.5% Cu) chalcopyrite-pyrrhotite-rich mineralisation is hosted by hornblende-biotite-altered meta-arkose and quartz-biotite schist metasedimentary rocks. Alteration and mineralisation are found within and adjacent to the major Levuka shear zone and a series of secondary shears. The deposit is characterised by a lack of magnetite but has an abundance of pyrrhotite.

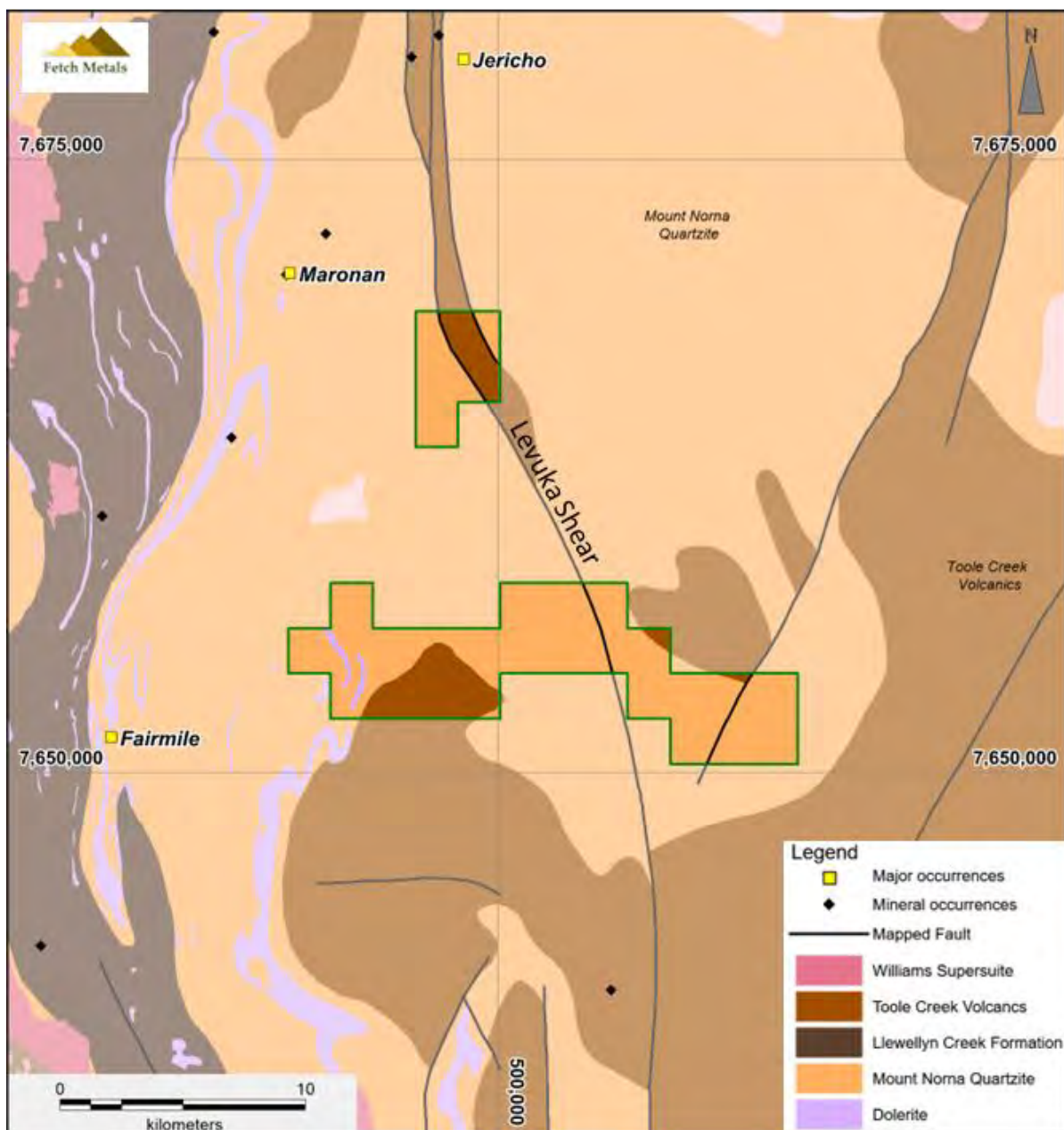


Figure 62: Geology Map for the Levuka South Project

### 8.3 Exploration and Mining History

In the past few decades, there have been numerous EPMs that partly overlap the areas covered by the project area. Most of these historical permits were granted to various companies to test the base and precious metal potential of the region. These exploration activities are summarized in Table 23.

**Table 23: Work Done Summary for the Levuka South Project.**

EPM No.	Company	Duration	Commodities	Work completed	CR Number
ATP 389M	Carpentaria Exploration	1970	Phosphate	Desktop Review	
ATP 607M	Exoil N.L. and Transoil N.L.	1969–70	Oil Shale	Drilling	2890, 3248
ATP 890M	Astra Mines	1971-72	N/A	N/A	
ATP 1157M	Anaconda Australia Inc	1972–73	Cu-Au	Geologic mapping, soil sampling, ground magnetics, diamond	4467, 4517
ATPs 2013M, 2134M	Mines Exploration Pty Ltd	1978–80	Cu-Au	Reconnaissance rock chip and stream sediment sampling, bedrock drilling, soil sampling,	7115, 7355, 7557, 7659, 7929, 8288,
ARP 2915M	Great Mines Ltd	1981	Oil Shale		9654
ATP 3721M	Utah Development Company	1983–87	Cu-Au, Ag-Pb-Zn	Regional stream sediment sampling, gully sediment sampling, rock chip and soil sampling, IP, Sirotek and magnetic surveys, RAB drilling,	14777, 15696, 16531, 16533
EPM 6758	BHP/Exco	1989-	Cu-Au	Drilling	74718, 65477, 54633, 51010, 36330, 33182, 32581, 31615, 31138, 28666, 24365, 22817
EPM's 6982, 5583, 5560, 3732, 3734	Billiton Australia, Acacia Minerals Pty Ltd, Fodina Minerals, and Outokumpu Exploration	1980s–1990s	Cu-Au, Ag-Pb-Zn	Geological reconnaissance, regional mapping, gridding, ground magnetics, EM surveying, soil and rock chip sampling, RC percussion drilling, diamond drilling, geophysical modelling	22849, 23506, 23600, 24374, 25371, 26491, 26959, 27576, 28251, 29077, 29079, 29080, 30045, 30542,
EPM 9462	Mount Isa Mines and Hunter Resources Ltd	1993–96	Cu-Au, Ag-Pb-Zn	Airborne magnetic and radiometric surveys, soil and rock chip sampling, RC drilling, costeaning	30507, 36193, 43559, 45633, 46777, 52472, 57812, 63707, 63760, 67434,
EPM 10334	BHP		Cu-Au, Ag-Pb-Zn	Airborne Geotem over parts, Ground mag traverses, gravity stations, one hole	32543, 28666
EPM's 14434, 12060	Exco	2000-2010		Review of open-file data	59742
EPM 13388	Noranda Pacific Pty Ltd	2002	Cu-Au	Review of open-file data	33692
EPM's 14326, 14463	BHP Billiton	2003–09	Cu-Au, Ag-Pb-Zn	FALCON™ airborne gravity, ground gravity and ground magnetic surveys, diamond drilling	42785, 46048, 51369, 54923, 42785, 46048, 51369, 57048,

EPM 14746	Sherwood Ventures Pty Ltd (Copper Strike Ltd) and Syrah	2005–08	Cu-Au, Ag-Pb-Zn	Review of open-file data	44703, 49300, 49373, 56092, 61113
EPM 16311	Syrah Resources	2009	Cu-Au, Ag-Pb-Zn	Review of open-file data	59013

Figure 63 shows the coverage of exploration work for the EPMs. The conclusion from the figure and the table above is that the area has been relatively well explored.

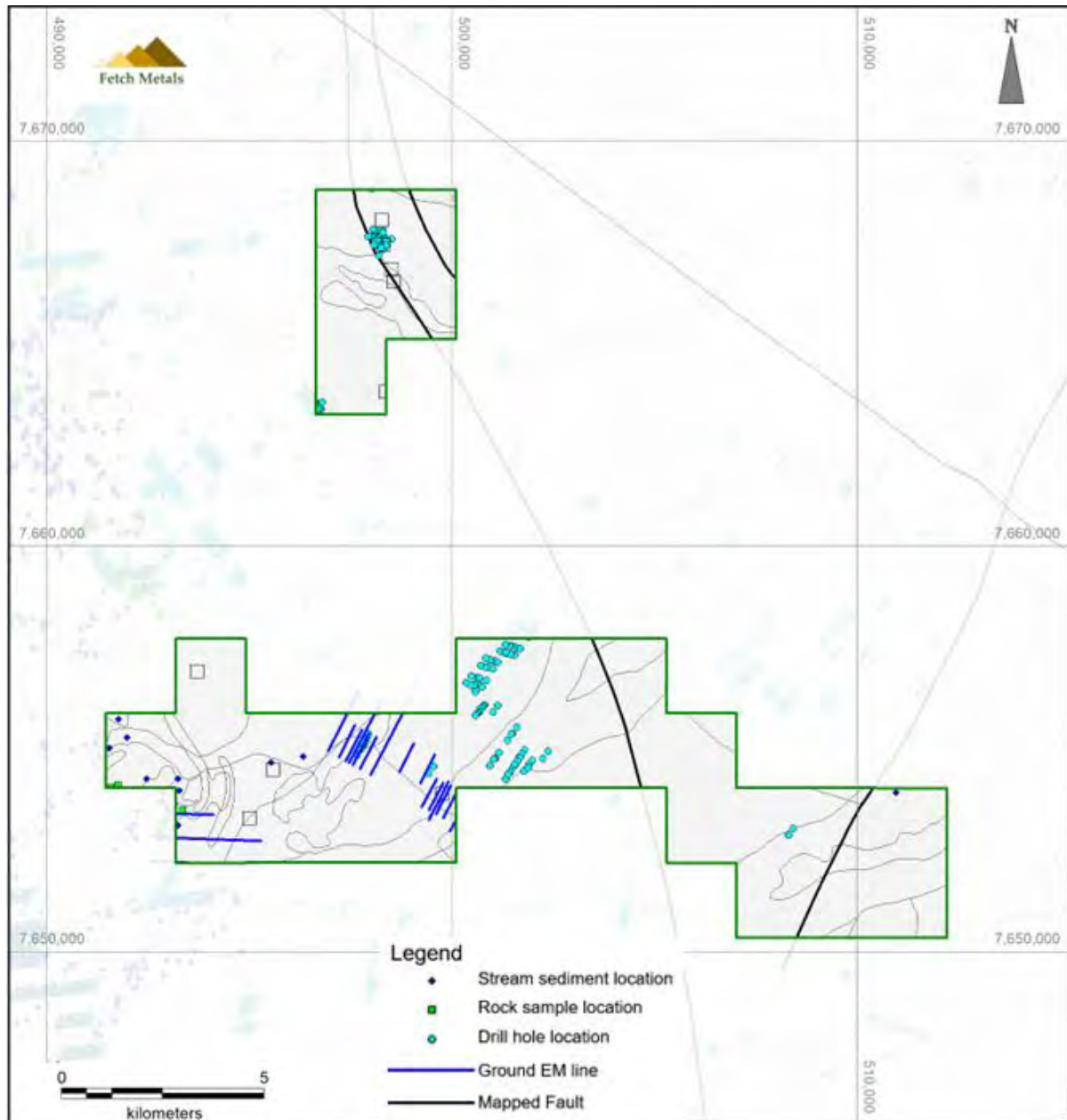


Figure 63: Historic Exploration for Levuka South Project.

## 8.4 Exploration Opportunities

Fetch considers the Levuka South Project to be highly prospective for Eloise-style ISCG Cu-Au mineralisation. There has been extensive work by previous explorers, consisting mostly



of ground EM, ground magnetics, and limited drilling. This work defined a number of conductivity anomalies however the majority were caused by graphitic schist, with the exception of Boanda where drilling intersected 37m @ 0.42% copper within massive pyrrhotite-carbonate breccia. The drill intersection at Boanda illustrates the project area's potential and Fetch have identified a number of other conductivity ( $\pm$  magnetic and gravity anomalies) anomalies from the previous work that remain untested. Fetch plan to focus exploration on to these anomalies. This is likely to involve further geophysical testing and reconnaissance drilling.

Figure 64 is the exploration target map for the Levuka South EPMs on a backdrop of Bouguer gravity.

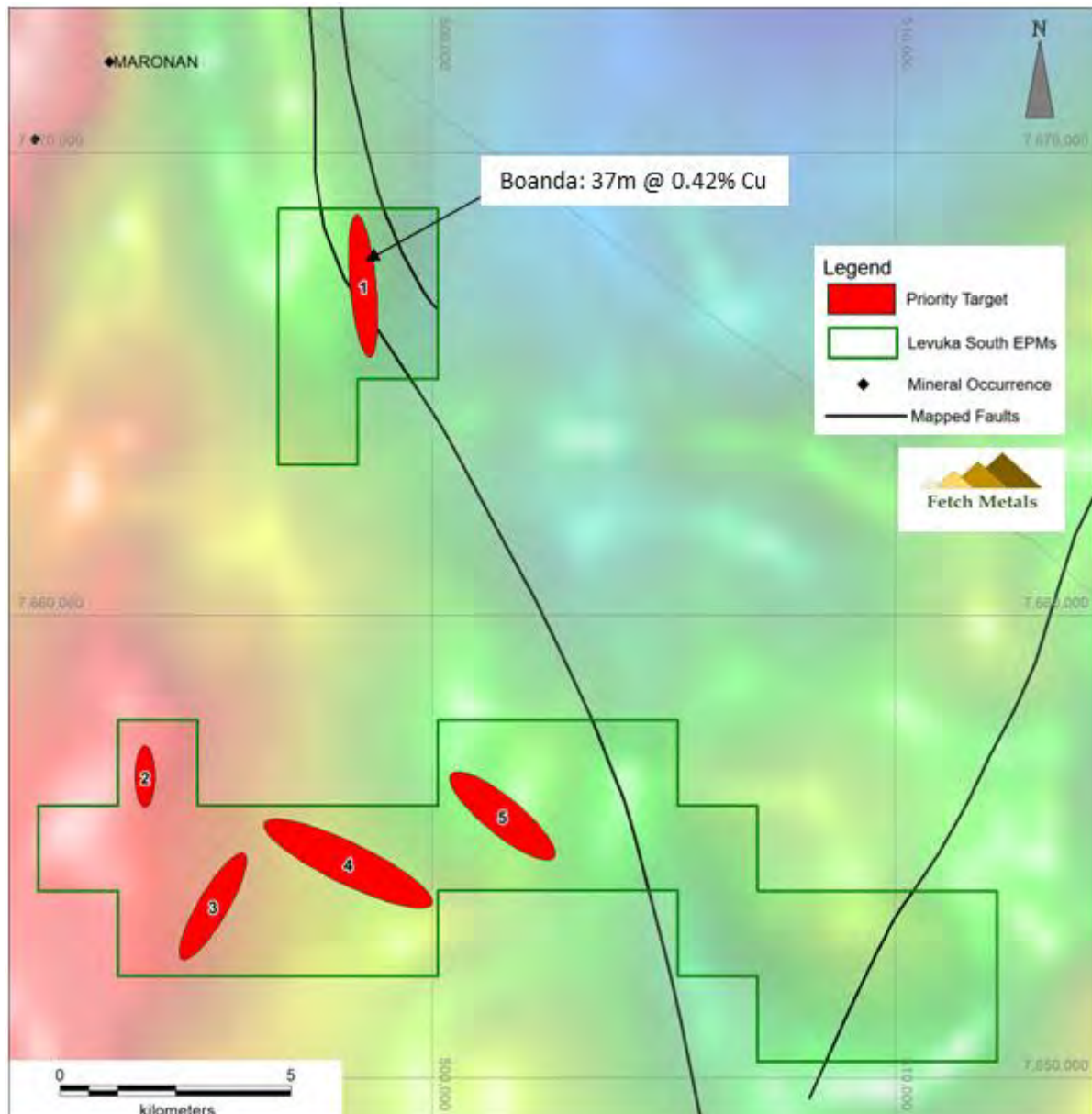


Figure 64: Exploration Target Map for the Levuka South EPMs

## 8.5 Conclusion & Recommendations

The geological setting for the Levuka South Project is similar to that for the Eloise Cu/Au mine and the Jericho Cu/Au deposit. The EPMs straddle the same structural trend related to those two deposits.

Substantial exploration has been completed by previous explorers, including ground EM and follow-up drilling. The drill intersection at Boanda is promising and demonstrates the potential for significant mineralisation within the project area.

The exploration program planned by Fetch initially involves detailed ground magnetics to assist with lithological and structural interpretation. Additional ground EM over the priority targets will also be completed. This would remove any uncertainties associated with the location of the historical EM anomalies, would allow modelling of the depth and attitude associated with the anomalies, and would provide higher quality data due to technological advances such as higher-powered transmitters.

## 8.6 Programmes & Budgets for the Levuka Project

The planned exploration activities and budgets are listed in Table 24

**Table 24: Levuka South Project Exploration Budget**

Levuka South Project			
Category	Year 1	Year 2	Total
Tenement Rent	\$5,000	\$5,000	\$10,000
Digital Modelling and Drill Planning	\$8,000	\$8,000	\$16,000
Geophysics Review / Planning	\$10,000	\$10,000	\$20,000
MLEM Program	\$45,000	\$0	\$45,000
Drilling (600m RC)	\$0	\$84,000	\$84,000
<b>Total</b>	<b>\$68,000</b>	<b>\$107,000</b>	<b>\$175,000</b>

H&SC considers the exploration program and expenditure fully justified.

# 9 Tombola Base Metals & Gold Project

## 9.1 Introduction

The Tombola Base Metals and Gold Project is located 12 to 40km southeast from Cloncurry (Figure 65). It comprises 4 semi-contiguous EPMs and a collection of granted mining leases focussed on the Gilded Rose and Mount Freda mining operations. Fetch currently holds a 11% interest in the tenements with Tombola Gold, who are the operator of the project. Fetch has not allocated any expenditure to that Project nor does Fetch have any input into the exploration and mining programs underway.

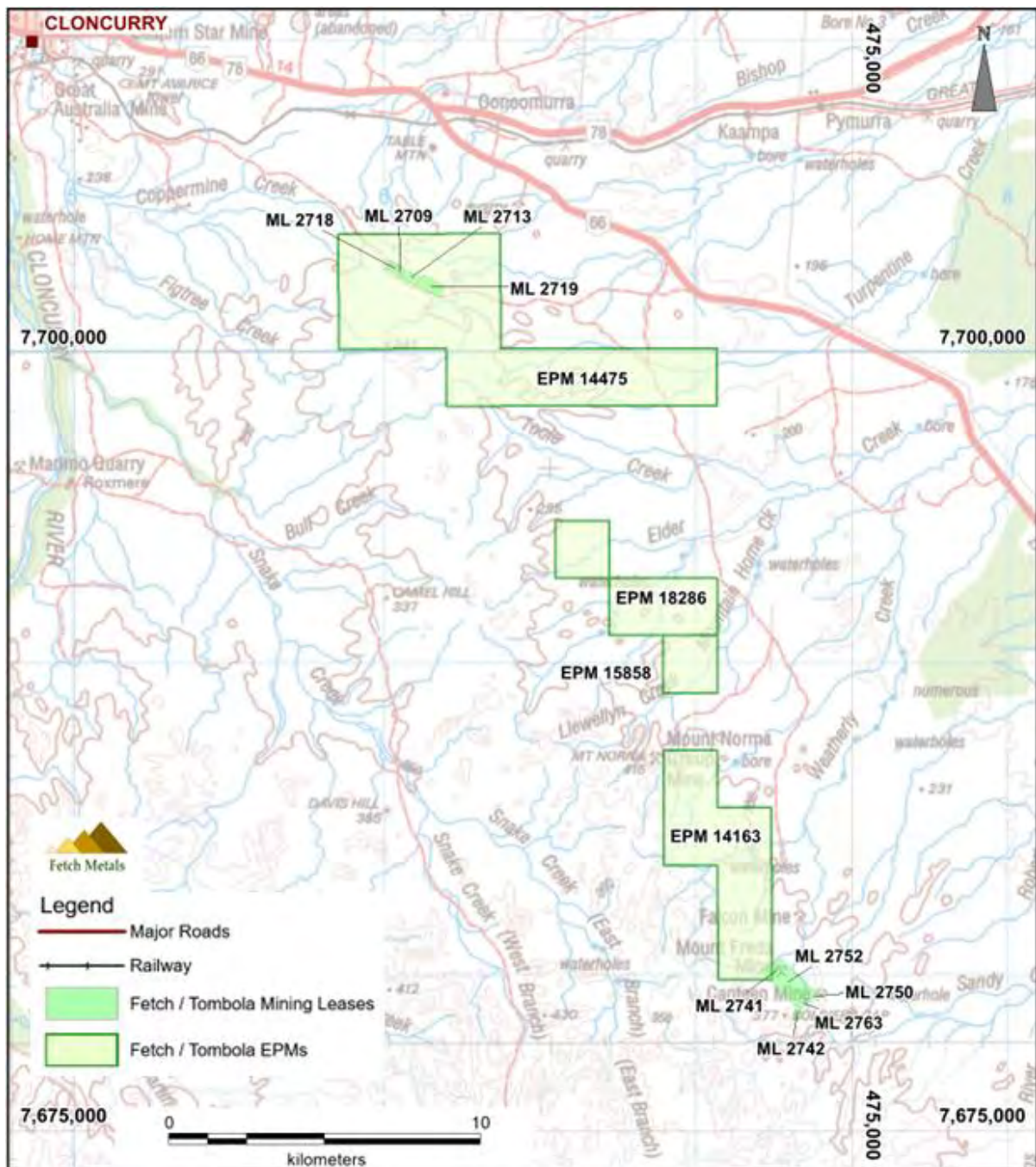


Figure 65: Tombola Project Tenure on 250K Topography.

## 9.2 Geology & Mineralisation

Interpretation of open-file aeromagnetic and drilling data indicate that the Tombola Project area is underlain by the Soldiers Cap Group of the EFB (Figure 66).

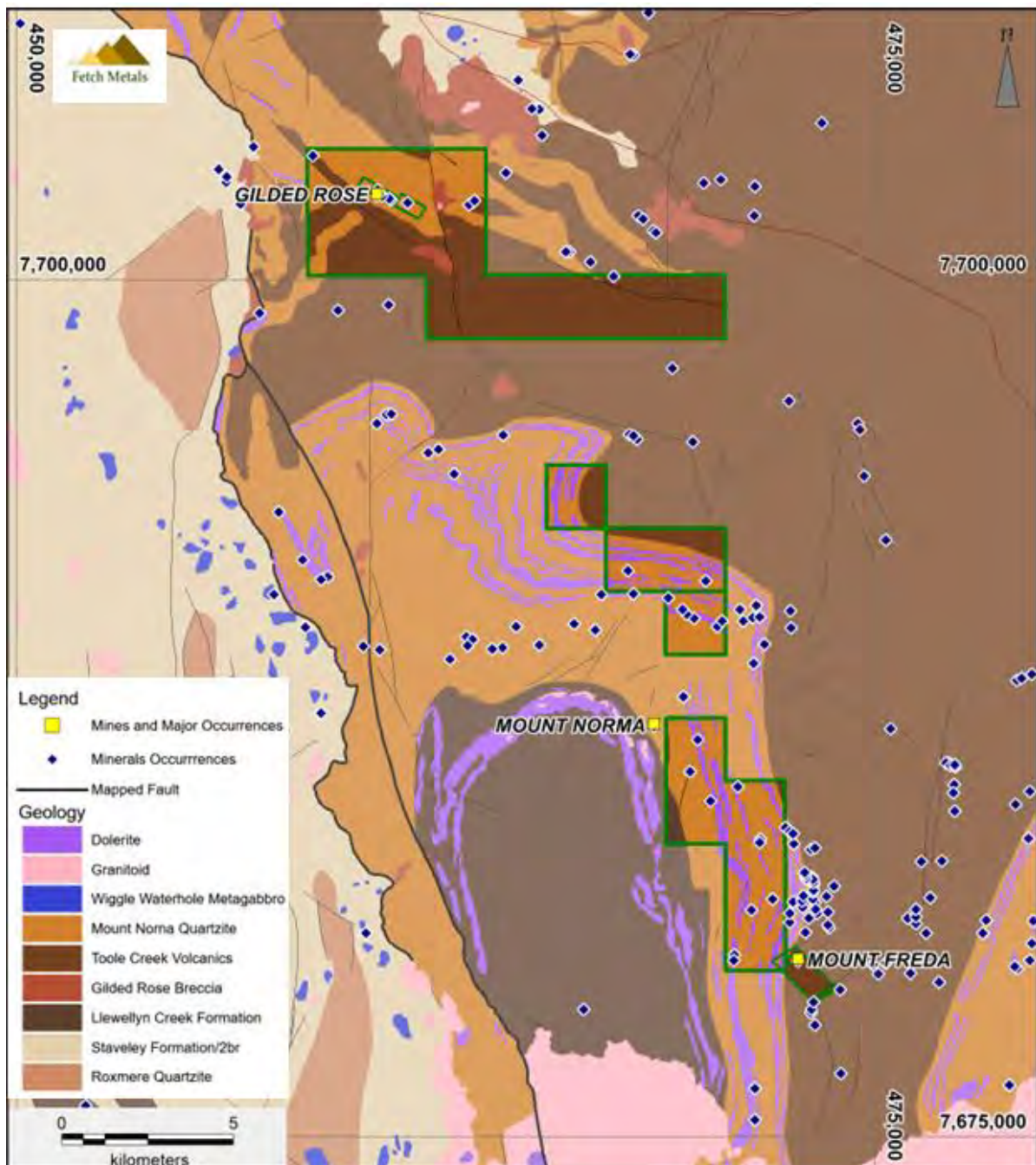
The Soldiers Cap Group comprises a strongly foliated meta-sedimentary sequence of Mid Proterozoic rocks. The lithologies include interlayered meta-arkose and quartz-biotite-schist, which also contains a coarse-grained amphibolite body possibly representing an early intrusion of gabbroic/doleritic composition, and the sequence is cut by faults of various ages. The Soldiers Cap Group consists of three units, namely the Toole Creek volcanics (amphibolite



and schist), the Mount Norna Quartzite (meta-arkose, schist, quartzite, and amphibolite), and the Llewellyn Creek Formation (psammite and schist). These rocks are also host to the Eloise Cu/Au mine and the Jericho Cu/Au deposit.

Deformation has created a complex arrangement of folds for the host stratigraphy on the EPMs.

The main mineral occurrences within the EPMs are Gilded Rose and Mt Freda.



**Figure 66: Tombola Project Solid Geology and Mineral Occurrences.**

The Gilded Rose gold deposit is contained within an interbedded sequence of schist, phyllite and amphibolite of the Mt Norna Quartzite of the Soldier's Cap Group. Gold mineralisation

occurs in sheeted quartz veins and reefs which can be traced for over 1km of strike (WNW-ESE) and comprise individual vein networks, bedding-parallel reefs and ladder veins with short strike lengths (<25m) occurring over a width of 0.5-10m. The main lode is known as Gilded Rose Reef and is accompanied by several narrower sub-reefs. The mineralisation occurs as translucent auriferous quartz veins in association with abundant limonite-goethite in the oxide zone. The sulphide zone is strongly pyritic and mineralisation occurs within and close to the southern limb of an unnamed regional E-W fold axis whereby associated cross-faults may be significant in controlling mineralisation.

The Mt Freda gold deposit is hosted within amphibolites, meta-basalts and intercalated slates and siltstones of the Toole Creek Volcanics, on the western limb of a northerly plunging synform (Amalg 1998). The lode consists of a fault zone perpendicular to stratigraphy composed of quartz and carbonate veined fault gouge and breccia. The main mineralised Mt Freda Fault zone extends for some 500m along strike and dips moderately-steeply south, although the actual structure continues along strike in both directions for some distance. Best gold mineralisation occurs in the fault breccias and weakens passing into the carbonate-dominant facies. Secondary enrichment is apparent in some places. Drilling has indicated the lode is weathered to a depth of around 150m below surface, however mainly sulphidic material occurs at the base of the current pit, reported at 40m.

### 9.3 Exploration and Mining History

Gilded Rose has been mined intermittently since 1870 with many small pits and shafts existing around the site reflecting small scale mining activity that continued through until 1940. Exploration continued in the 1980s when Diversified Mineral Resources NL (“DMR”) purchased the project in 1987. In joint venture with Central Victoria Gold Mines, DMR reportedly drilled 32 RC holes at Gilded Rose.

Trial mining of oxide material by DMR in 1988 using a heap leach operation indicated poor recoveries due to the non-dissolution of coarse gold. A second trial mining exercise in 1989 using a CIP plant resulted in better recoveries of 93%. It is estimated that recent mining has extracted approximately 11,600t at gold grades ranging from 10ppm to 23ppm. Records suggest around 300 kg of Au have been produced from Gilded Rose to date at reported grades of between 11 and 56g/t.

QMC obtained Gilded Rose and surrounding leases from the Receivers of Matrix Metals Ltd in 2007 and drilled 24 RC drillholes in 2010 to further investigate potential for a gold Mineral Resource.

Up to the end of 1895 266t of ore at an average recovered gold grade of ~6 ppm was mined from Mt Freda. Open cut mining between 1938 and 1940 produced an unknown quantity of ore at a reported grade of 15.6ppm Au. In 1985 Albert O’Keefe mined some 4,000t of ore at a grade of 14ppm Au which was sent to Ravenswood for processing. A vat leach operation at the same time processed an unknown quantity of ore. In 1987 DMR started mining the Mt Freda deposit and built a CIP processing plant, however operations ceased in 1989 as the project failed to meet production expectations. Approximately 140 kt at an average grade of 1.7ppm Au were reportedly mined by DMR.

QMC obtained Mt Freda and surrounding leases from the Receivers of Matrix Metals Ltd in 2007 and drilled 52 DD and RC drillholes between 2008 and 2010 to further investigate potential for a gold Mineral Resource.

Records suggest around 315 kg of Au have been produced from Mt Freda to date at reported grades of between 1.7 and 15.6ppm.

Table 25 documents recent exploration activity for the Tombola EPMs.

**Table 25: Historical Exploration Activity from the 1970s to the Present Day**

Date	Company	Investigations	Drilling	Relevance of results
Pre 1979	Kallangur Lime Pty Ltd	Regional exploration for limestone	None	None
1979-1981	Theiss Bros Pty Limited	General reconnaissance for gold and potential placer gold targets of Jurassic Marburg Formation.	None	Minor
1979-1981	CSR Limited	Examined Theiss' activity.	None	None
1979-1981	Sub-Oceanic Minerals NL	Stream sediment and widely spaced soil-sampling program for base metals.	None	None
1979-1981	A.O.G. Minerals Ltd	Explored for large-scale, low-grade disseminated tin and base- metal deposits.	None	None
1979-1981	Grebroa Pty Ltd	Investigated precious metals in the vicinity of a known antimony occurrence.	None	None
1984	Austmax Resources Limited	Investigated the "chert-spilite" association (defined by Flood and Fergusson 1984) as a source for gold.	None	None
1985	William John Shanahan	Investigated gold deposits in the Pikedale and Palgrave Mining Fields.	None	None
1986	Burmine Limited	Rock-chip sampling on the Glenelg prospect and several other prospects.	None	None
1988	Freeport Minerals Australia Incorporated	Regional stream geochemistry, mapping and rock chip sampling for stratabound silver-base metals mineralisation.	None	None
1988-1989	Saracen Minerals NL	Detailed large-scale gold bulk-leach sample survey with follow up close-spaced bulk-leach stream-sediment and rock- chip sampling. Minor drilling.	Yes, see below	Some useful but limited
1988-1989.	Newmont Australia Ltd held	Detailed stream sediment bulk-leach-extractable-gold sampling survey and reconnaissance rock chip sampling for epithermal and Carlin-style gold mineralisation.	None	Limited
1990-1991	BHP Gold Pty Limited, later Newcrest Mining	Extensive stream-sediment sampling in the Canal Creek area.	None	Limited
1991-1992	Homestake Australia Ltd	Reconnaissance for large-scale low-grade gold mineralisation.	None	Limited



1992 -1995	Western Mining Corporation	Searched for Renison Bell style carbonate-hosted tin deposits.	None	None
1994 -1998	Cuprifex Mining NL (a subsidiary of Aurifex Mining NL, then Hillcrest Resources NL)	LANDSAT study, geological mapping and stream-sediment and rock-chip sampling programs for gold.	None	Limited
1996 - 1998	Hillcrest Resources NL	LANDSAT study and soil and rock-chip sampling programs for gold.	None	Limited
2004-2005	Metallica Minerals Limited	Geochemical work directed towards bulk tonnage low-grade gold.	None	Limited
2011 - 2013	Navaho Gold Limited	Processing of previous data including geochemistry and geophysics with minor stream-sediment sampling having taken place.	None	Limited

Figure 67 shows the coverage of exploration work for the EPMs. The conclusion from the figure and the table above is that the area has been relatively well explored mainly via surface geochemistry.

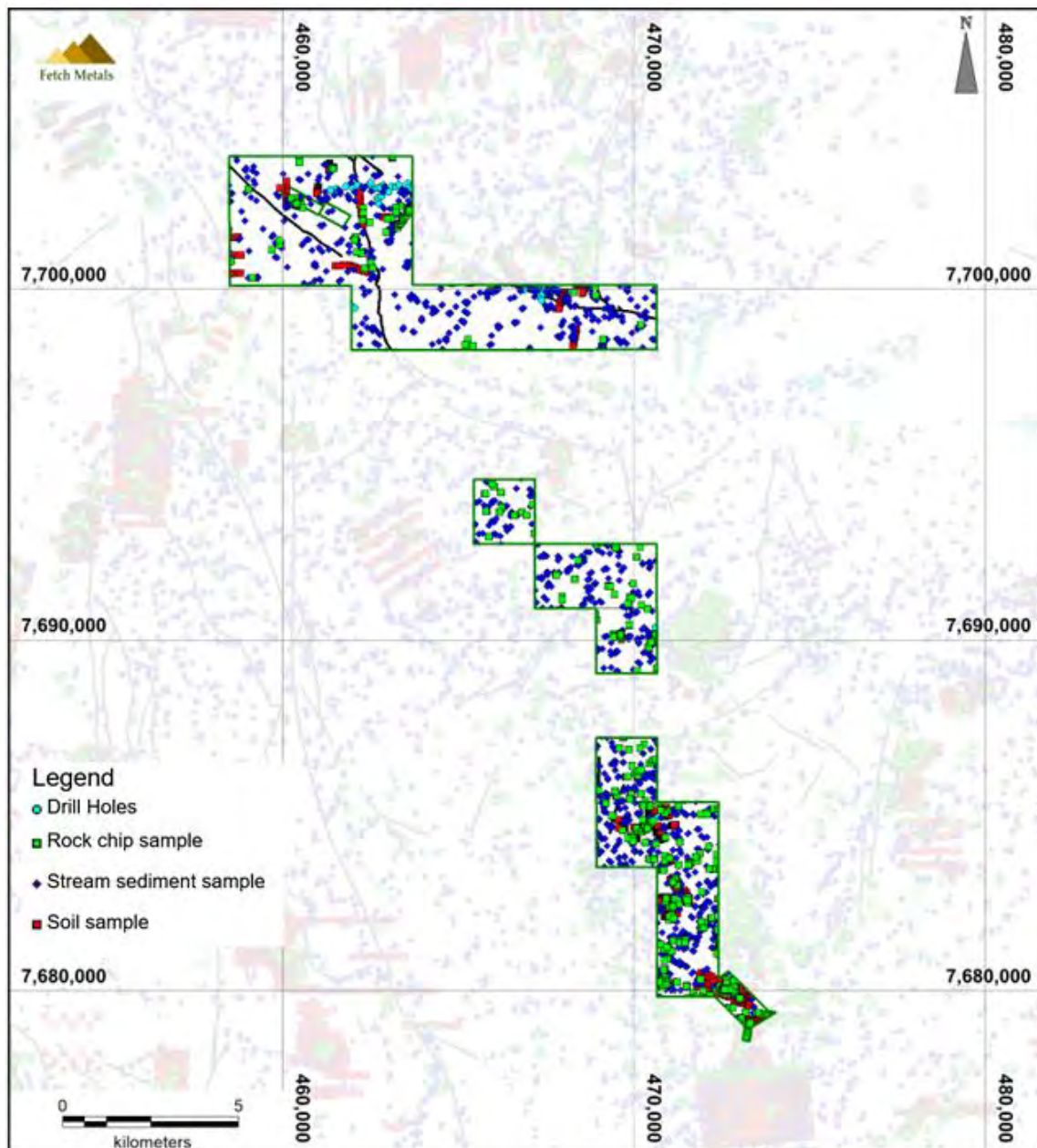


Figure 67: Tombola Project Historical Exploration.

## 9.4 Conclusions & Recommendations

Tombola Gold continue to develop and drill their tenement holdings in the Cloncurry region, including those tenements partially owned by Fetch Metals. Tombola have announced exploration activities to the ASX covering some of the Fetch ground, however Fetch cannot comment on the veracity of these plans, or the work completed to date.

## 9.5 Programs & Budgets for the Tombola Gold Project

Fetch has no funding requirements or knowledge pertaining to the Tombola exploration program or budget.

**Simon Tear**

**Director & Consulting Geologist**

**H & S Consultants Pty Ltd**

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## 10 Sources of Information

Fetch has started to construct and collate an exploration database that includes data from government sources (such as airborne geophysics, aerial imagery and large-scale geological mapping), re-processing government airborne geophysical surveys, diamond drill core and percussion drill chips sampling and logging, surface grab sampling, petrological examinations and reports on samples from the prospects, ground geophysical surveys and geological mapping.

H&SC has sighted and used the database but has not validated the database and thus cannot comment on the veracity of the data; however, H&SC has noted that based on data seen, the database is of good quality and is being reasonably managed considering that Projects' development and exploration is still in the early stages. Fetch has plans to further develop their database systems in line with industry best practices, especially before the onset of more drilling or extensive surface sampling.

Open file and internal company reports available from the Queensland Department of Natural Resources and Mine. Open File Company reports are denoted "CR".

Fetch holds an extensive dataset which was made available to H&SC. A comprehensive list of reports, publications and other materials relating to the mineral properties is available in the public domain and at the offices of Fetch. H&SC considered the following sources of information were the most relevant.

Simon Tear of H&SC completed a 3-day site visit in August 2022. The visit included field inspection of the major prospects for the White Range Project, a review of unsampled drillcore for the Greenmount mineralisation, a review of selected core for Mt McCabe and a selection of chip trays for the RC drilling from all the major deposits. The last feature including reviewing assays, including some multi-element assays and lithologies.

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## 10.3 Sandy Creek, Levuka South & Tombola

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## 10.4 Websites

<https://www.yamines.com.au>

<https://tombolagold.com>

## 11 Glossary of Technical Terms

Terms not included in the glossary below are used in accordance with their definition in the Concise Oxford Dictionary.

**aeromagnetic survey** a survey made from the air for the purpose of recording magnetic characteristics of rocks.

**alluvial deposit** a mineral deposit consisting of recent surficial water lain sediments.

**alluvial diggings** an area of past or present workings from which gold, transported thereto and deposited by river action, has been mined.

**alteration** change in the physical or chemical composition of a rock commonly brought about by reactions with hydrothermal solutions.

**anticline** a ridge or fold of stratified rock in which the strata slope downwards from the crest

**arsenian pyrite** a form of pyrite arsenic substitutes for some of the iron.

**aureole** a term applied to the zone of contact metamorphosed rocks surrounding an intrusion.

**basement** the igneous and metamorphic crust of the earth, underlying sedimentary deposits.

**basic** an igneous rock having a relatively low silica content.

**Broken Hill Type (BHT)** a class of ore deposits based on the Broken Hill Pb/Zn Mine in NSW.

**boudins** lensoid products of a periodically pinched or segmented rock layer or vein enveloped within a rock of a different kind as a result of compressive tectonic forces. Boudin means sausage in French because deformed sandstone beds at Bastogne were originally compared to sausages lying side by side.

**breccia** rock fragmented into angular pieces; often rock consisting of angular fragments in a finer-grained matrix; distinct from conglomerate.

**brownfield(s)** exploration opportunity at or close to existing mines or deposits.

**bulk leach (of sampling)** analytical method involving the chemical leaching of all or a large part of the collected sample, usually for gold.

**BCL** bulk cyanide leach.

**BLEG** bulk leach extractable gold

**calcareous** said of a rock which contains calcium carbonate.

**carbonate** a rock, generally a sedimentary rock, comprised largely of minerals containing CO<sub>3</sub>.

**Carboniferous** a time period, approximately 360 million to 290 million years ago.

**chalcocite** a copper(I) sulphide (Cu<sub>2</sub>S), is an important copper ore mineral

**chalcopyrite** a copper iron sulphide mineral and the most abundant copper ore mineral

**chert** very fine-grained rock composed of silica.

**chlorite** a green platy iron-magnesium rich silicate mineral.

**colloform** texture, often found in certain types of mineral deposits, where crystals have grown in a radiating and concentric manner.



**chrysocolla** is a hydrated copper phyllosilicate mineral often regarded as secondary mineral after oxidation of primary copper mineralisation with a formula  $\text{Cu}_{2-x}\text{Al}_x(\text{H}_{2-x}\text{Si}_2\text{O}_5)(\text{OH})_4 \cdot n\text{H}_2\text{O}$  ( $x < 1$ )

**costeaning** to dig trenches or small pits through the surface soil or debris to the underlying rock in place for the purpose of exposing the rocks

**covellite** is a rare copper sulphide mineral with the formula  $\text{CuS}$ .

**Cretaceous** a time period approximately 140 to 70 million years ago.

**craton(-ic)** an old and stable part of the continental lithosphere, which consists of the Earth's two topmost layers, the crust and the uppermost mantle

**cross-section** a (vertical) section drawn at right angles to the long axis of a geological feature.

**deformation** the action or process of deforming or distorting rocks generally at considerable depth in the Earth's crust

**diamond drilling** rotary drilling using diamond-impregnated bits, to produce a solid continuous core sample of rock.

**dip** the angle at which any planar feature is inclined from the horizontal.

**disseminated** descriptive of mineral grains which are scattered throughout the host rock.

**dolerite** medium to fine-grained basic igneous rock.

**dyke** a tabular igneous intrusion which cuts across the bedding or other planar structures in the country

**Electromagnetic Survey or EM Survey** an electromagnetic geophysical exploration technique based on measuring resultant magnetic fields from currents usually artificially induced into the ground.

**Ensialic belts** thought to have developed by mechanisms involving little horizontal movement and so are unrelated to plate tectonics. Many Proterozoic belts have been classed as ensialic belts.

**epigenetic** a mineral deposit of later origin than the enclosing rocks.

**epithermal** a hydrothermal mineral deposit formed at a relatively low temperature near the Earth's surface, mainly in veins.

**EPM** Exploration Permit Minerals, an exploration tenement in Queensland.

**eutaxitic texture** a layered or banded texture that is commonly caused by the compaction and flattening of glass shards and pumice fragments around undeformed crystals.

**exhalite** a rock exhaled from volcanos associated with massive sulphide.

**Fault corridor** elongated zone of narrowly spaced, highly connected, fractures/faults, can generate the main fluid flow pathways for mineralising fluids

**fiamme** are aligned, "flame-like" lenses found in welded ignimbrite and other pyroclastic rocks and indicate subaerial deposition.

**fissure** a surface or fracture in rock along which there is distinct separation.

**flysch** a sedimentary deposit consisting of thin beds of shale or marl alternating with coarser strata such as sandstone or conglomerate

**g/t** grams per tonne.

**granitoid** rock similar to granite in texture and composition.

**greenfields** early stage mineral exploration in relative unexplored territory

**hanging wall** the rocks above a unit, usually the mineralised zone and usually stratigraphically above.

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**host rock** the rock containing a mineral or an ore body.

**hydrothermal** pertaining to heated water, particularly of magmatic origin associated with the formation of mineral deposits or the alteration of rocks.

**Ignimbrite** pumice-dominated pyroclastic flow deposit with subordinate ash.

**Indicated Resource** a mineral resource sampled by drill holes, underground openings, or other sampling procedures at locations too widely spaced to ensure continuity but close enough to give reasonable indication of continuity, and where geoscientific data are known with a reasonable level of reliability.

**Inferred Resource** a mineral resource inferred from geoscientific evidence, drill holes, underground openings, or other sampling procedures where the lack of data is such that continuity cannot be predicted with confidence and where geoscientific data may not be known with a reasonable level of reliability.

**inlier** an area where older rocks are found to be surrounded by younger rocks

**intercept intersection** the length of e.g. mineralisation traversed by a drill hole.

**intrusion** the process of formation of a rock mass emplaced within surrounding rock

**intrusive** a rock mass emplaced within surrounding rock, usually a plutonic rock formed by intrusion of molten magma into a high level, below the surface, of the Earth's crust where it cooled and crystallised to form a solid rock.

**intrusive/intrusion related mineralisation** mineralisation associated with intrusives

**IP (Induced Polarisation)** a geophysical exploration method which measures changes in magnetic and electrical fields induced in the earth by the application of an electrical current to the ground.

**Iron Oxide Copper Gold (IOCG)** is a type of copper gold deposit associated with iron oxide minerals usually magnetite and/or hematite

**lineament** a linear feature of regional extent that is believed to reflect the Earth's crustal structure.

**lode** a tabular or vein like deposit of valuable mineral between well-defined walls of country rock.

**lower cut-off grade** the grade of mineralised material that qualifies as potential ore in a given deposit.

**magnetic 'low'** an area of low magnetic expression relative to the surrounding area.

**magnetic survey** systematic collection of readings of the Earth's magnetic field at a series of different locations, in order to define the distribution of values which may be indicative of different rock types, formations, etc.

**malachite** a copper carbonate hydroxide mineral, with the formula  $\text{Cu}_2\text{CO}_3(\text{OH})_2$

**Measured Resource** a mineral resource sampled by drill holes, underground openings, or other sampling procedures at locations suitably spaced to ensure geological and grade continuity but close enough to give strong indication of continuity, and where geoscientific data are known with a high level of reliability

**Mesozoic** an era of geologic time, from the end of the Palaeozoic to the beginning of the Cainozoic, or from about 250 to about 65 million years ago.

**meta** a prefix denoting a metamorphosed rock.

**metamorphic** descriptive of a rock which has changed its structure and properties due to the effects of heat and/or increased pressure over time.

**ML/MDL (MLA)** Mining Lease/ Mine Development Lease (Application), a mining tenement.

**Orogeny** a mountain building event that is the result of collision between two landmasses. This may occur via collision of continental crust (continent-continent collision) or when oceanic and continental crust collide (ocean-continent collision).

**pelite** a metamorphosed fine-grained sedimentary rock, i.e. mudstone or siltstone.

**percussion** a type of drilling method whereby the rock is broken by a hammering action into small chips.

**Permian** a time period, approximately 290 million to 250 million years ago.

**Permo-Carboniferous** an interval of geologic time covering the Permian and Carboniferous periods.

**petrography** study of rock texture on a macro and microscopic scale.

**petrology** study of formation of rock.

**phyllite** a type of foliated metamorphic rock created from slate that is further metamorphosed so that very fine grained white mica achieves a preferred orientation. It is primarily composed of quartz, sericite mica, and chlorite

**ppb** parts per billion (1000 million).

**ppm** parts per million (the same as grams per tonne; g/t).

**Proterozoic** a geological eon that covers the time from the appearance of oxygen in Earth's atmosphere to just before the proliferation of complex life (such as trilobites or corals) on the Earth; time interval from 2500 to 538.8 million years ago.

**pyroclastic** a clastic rock containing rock fragments created by volcanic explosion

**orocline** is a bend or curvature of an orogenic (mountain building) belt imposed after it was formed.

**RAB drilling** Rotary Air Blast drilling, is an open-hole drilling technique in which compressed air is injected down the drill pipe in order to recover the cuttings up the outside of the drill stem to the surface

**radiometric** pertaining to the measurement of radiation produced by the spontaneous decay of certain atoms.

**RC (Reverse Circulation)** a drilling method in which the sample is brought to the surface inside the drill rods, thereby reducing contamination. Conventional percussion drilling retrieves the sample exterior to the rods between the rods and the wall of the drill hole

**reduced to pole (RTP)** the transformation from a directional magnetic survey to the earth's magnetic field.

**resistivity** a method of geophysical exploration which measures the electrical resistance of rocks in the ground.

**rhyolite** a lava, the extrusive equivalent of granite.

**rock-chip sampling** obtaining a sample, generally for assay, by breaking chips off a rock face.

**saddle-reef** a saddle-shaped bedded mineral vein in the form of an anticline or a syncline (an inverted saddle).

**schist** a metamorphic rock with platy to foliated texture.

**sericite** mineral; fine grained white mica of similar composition to muscovite.

**shear (zone)** (to move as to create) a planar zone of deformed rock.

**skarn** a thermally metamorphosed impure limestone.



**soil sampling** systematic collection of soil samples at a series of different locations in order to study the distribution of soil geochemical values.

**stockwork** a network of usually quartz veinlets diffused in the original rock.

**strike** horizontal direction or trend of a geologic structure.

**strike length** the long dimension of a geological feature such as a bed, vein or fault where it intersects a horizontal plane, especially the ground surface

**stringer** a narrow vein or irregular filament of mineral traversing rock mass of different composition.

**structurally controlled** relates to mineralisation that has formed as a result of an existing structure usually a fault

**sulphide** a general term to cover minerals containing sulphur and commonly associated with mineralisation.

**supergene** a process of mineral enrichment that occurs relatively near the surface and includes the predominance of meteoric water circulation with concomitant oxidation and chemical weathering.

**syncline** a fold in the rocks with younger layers nearer to the core of the structure.

**synform** A topographic feature which is composed of sedimentary layers in a concave formation, but may not actually form a real syncline

**syngenetic** said of a mineral deposit formed at the same time, and by essentially the same processes as the enclosing rocks.

**terrane** a rock or group of rocks together occurring as a discrete structural block.

**Tertiary** first period of the Cenozoic era covering the time span from 2 to 65 million years ago.

**Triassic** a time period, approximately 250 million to 210 million years ago.

**tuff (aceous)** a rock formed by compaction of volcanic fragments and ash.

**ultrabasic** said of rocks with less than 35% silica, which are dense, composed of calcic feldspars and ferro-magnesian silicate minerals.

**vein** a thin sheet-like infill of a fissure or crack, commonly bearing quartz.

**wacke** also called dirty sandstone; sedimentary rock composed of sand-sized grains with a fine-grained clay matrix.

## 12 Declaration

### 12.1 Qualifications and Experience

This report has been prepared by H&S Consultants Pty Ltd through its duly authorised and qualified representative, Mr. Simon James Tear, Minerals Exploration Consultant and a Director of the company. H&S Consultants Pty Ltd and its forerunner Hellman & Schofield has operated in Australia serving the mining industry since 1995.

Mr. Tear has had more than 37-years experience in the minerals industry, particularly exploration for precious metals and base metals, mining geology, resource estimation and property assessment. He held senior positions with RTZ PLC, CRA Exploration Pty Ltd, Western Metals/Aditya Birla before joining resource estimate experts Hellman & Schofield Pty Ltd in 2006, which is the forerunner of the current H&S Consultants Pty Ltd.

His principal qualification is a Bachelor of Science (Honours) in Mining Geology from the Royal School of Mines, Imperial College, UK. His professional affiliations are as follows:-

1. Member of The Australasian Institute of Mining & Metallurgy (MAusIMM)
2. Professional Member of The Institute of Geologists of Ireland (PGEO).
3. Professional Member of the European Federation of Geologists (EURGEOL)
4. Member of the Institute of Materials, Minerals & Mining (MIOM3).

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For and on behalf of H & S CONSULTANTS PTY LIMITED



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