



30 January 2014

## **DECEMBER 2013 QUARTERLY ACTIVITIES REPORT**

### Kitumba Mineral Resources Upgrade Delivers Excellent Results for PFS Optimisation

#### **► KEY POINTS**

##### **KITUMBA PROJECT** (Blackthorn Resources 100%)

- The Prefeasibility Study Optimisation program commenced.
- Final results from Phase 7 infill drilling were received, yielding further world-class copper intercepts.
- Revised Mineral Resource Statement released, confirming a 25% increase in contained copper at a grade of 2.29% copper (at 1% cut-off).
- Maiden Ore Reserve Statement for Kitumba released.

##### **PERKOA PROJECT** (Blackthorn Resources 27.3%)

- Maiden export shipment of Zn concentrate sailed.
- Quarterly production in-line with single ball mill operation, and improved quarter-on-quarter.

##### **MUMBWA EXPLORATION** (Blackthorn Resources 100%)

- Three near Kitumba step-out holes were drilled.

##### **BURKINA FASO EXPLORATION** (Blackthorn Resources 100%)

- Base metals exploration on Northern Tenements continued.

#### **CORPORATE**

- Cash on hand at 31 December 2013 was \$16.3 million.
- Director appointment announced.
- CEO appointment announced.
- AGM held 28 November 2013.

## **KITUMBA PROJECT, ZAMBIA (Blackthorn Resources 100%)**

### Kitumba Prefeasibility Study Optimisation

Following release of the prefeasibility study (PFS) in September 2013, work on the PFS Optimisation commenced, with Perth-based Lycopodium Minerals Pty Ltd and Australian Mining Consultants, along with other specialist consultants, engaged to complete a series of optimisation studies on the PFS.

The PFS Optimisation study is reviewing the key areas identified as having the greatest potential to improve the project economics, including metallurgy and copper recovery, mining sequence and geotechnical understanding:

*i. Mineral resources and Ore reserves*

The PFS was based on the April 2013 Mineral Resource estimate with 100% of the ore mined being from Mineral Resources in the Indicated category. The Phase 7 drilling program was designed to further improve the confidence level of the Mineral Resource and to advance some Mineral Resources to the Measured category.

An updated Mineral Resource estimate was completed in December 2013, with the excellent results reported from the Phase 7 drilling program having translated into an increase in tonnes, grade and confidence level. The December 2013 Mineral Resource estimate results will now be incorporated in the PFS Optimisation study.

*ii. Metallurgy and recoveries*

Further metallurgical test work is being undertaken on additional ore samples collected during the Phase 7 drilling program. An independent metallurgist has been engaged to manage the test work program and to examine opportunities for optimising the metallurgical process design, reducing costs and increasing recovery for each material type.

*iii. Mining sequence*

The production schedule used in the PFS indicated that the ore grade peaks mid-mine life. A revised mining plan will assess opportunities to modify the production schedule to smooth out the mined grade over the production life and ensure consistent feed quality to the process plant. The optimisation will also encompass development schedule optimisation to provide the “best fit” with the chosen production strategy.

The PFS Optimisation study incorporating the results from all these key areas is expected to be completed in April 2014.

### Kitumba Infill Drilling

Following the completion of the Kitumba Mineral Resource revision in April 2013, the Phase 7 drilling program was initiated, consisting of a total of 10 infill holes and three geotechnical holes. In addition, the extension of holes S36-026 and S36-028 as well as a

single angled hole from the surface (KITDD\_034) were drilled to assess the potential for further deep hypogene mineralisation as drilled in S36-026 immediately to the north of the Kitumba deposit - refer to Appendix: Figure 1, Kitumba Drill Hole Location Plan; Appendix: Table 1, Completed Phase 7 Drill Holes.

Final assay results of the Phase 7 drilling program were released during the quarter - reported in accordance with the JORC Code (2004 edition), and provided further world-class copper intercepts from drill holes KITDD\_032, KITDD\_033 and KITDD\_037:

- KITDD\_032 returned 223m @ 3.22 Cu from 183m to 406m, including:
  - 167m @ 4.1m from 212m to 379m;
- KITDD\_033 returned 110m @ 4.08% Cu from 236m to 346m, including:
  - 39m @ 7.35% from 236m to 275m;
- KITDD\_037 returned 186m @ 2.25% Cu from 221m to 407m, including:
  - 77m @ 4.1% from 315m to 392m.

Data from the Phase 7 infill drilling program was included in the updated Kitumba Mineral Resource estimate announced December 2013.

#### Kitumba Mineral Resources Estimate

Following receipt of final assay data from the Phase 7 infill drilling program, the MSA Group (MSA) completed an updated Mineral Resource estimate for the Kitumba deposit, which was reported in accordance with the JORC Code (2012 Edition) – refer to the ASX Announcement – Kitumba Mineral Resources Update, dated 16 December 2013. A copy of the ASX announcement is available on the Company's website at [www.blackthornresources.com.au](http://www.blackthornresources.com.au).

Using a 1% Cu cut-off, the Kitumba deposit now contains a total Measured and Indicated Mineral resource of 34.7 Mt at 2.29% Cu for a total of 795,000 tonnes of copper. This represents a 25% increase in contained metal over the April 2013 Mineral Resource estimate. A key improvement on the previous Mineral Resource estimate is the inclusion of Measured material. The deposit now contains 10.4 Mt in the Measured category at a grade of 2.93% Cu using a 1% cut-off for a total of 306,000 tonnes of copper, or approximately 38.5% of the total contained copper in the Measured and Indicated categories.

#### **Mineral Resource Estimate by Category, December 2013 – at 1% Cut-off Grade**

Category	Tonnes (Mt)	Cu grade (%)	Au grade (g/t)	Ag grade (g/t)	U grade (ppm)
Measured	10.4	2.93	0.04	1.16	23
Indicated	24.2	2.02	0.03	0.89	28
<b>Measured &amp; Indicated</b>	<b>34.7</b>	<b>2.29</b>	<b>0.03</b>	<b>0.97</b>	<b>27</b>
Inferred	4.1	1.37	0.03	0.65	30
<b>Total</b>	<b>38.8</b>	<b>2.19</b>	<b>0.03</b>	<b>0.93</b>	<b>27</b>

### Maiden Ore Reserve Statement

Following the completion of the PFS, the Company commissioned RungePincockMinarco Limited (RPM) to complete an independent estimate of the underground Ore Reserve for the Kitumba deposit.

A maiden JORC Code (2004 Edition) compliant Probable Ore Reserve including 33.5 Mt of ore at 1.7% Cu for a total of 541,000 tonnes of copper was calculated for the Kitumba deposit and announced on 23 October 2013.

The Ore Reserve Statement was based on the outcomes of the underground PFS (pre-optimisation) announced in September 2013 and the April 2013 Mineral Resource Estimate (MRE). The MRE was based on geological modelling that incorporated both the Phase 6 drilling program completed in early 2013 and the exploration database created over more than 10 years of previous field programs.

### **Summary of Kitumba Ore Reserves**

Category	Tonnage (Mt)	Cu Grade (%)	Cu Metal Content (t)
Proved	0	0.0	0
Probable	33.5	1.7	541,000
<b>Total</b>	<b>33.5</b>	<b>1.7</b>	<b>541,000</b>

The Ore Reserve Statement will be updated following completion of the PFS Optimisation study, with the mine plan developed in the optimisation study based on the 16 December 2013 Mineral Resource estimate block model.

### ► **PERKOA PROJECT, BURKINA FASO** (Blackthorn Resources 27.3%)

#### Maiden Shipment of Zinc Concentrates

The first export shipment of zinc concentrate from the Perkoa mine was loaded and sailed in October 2013. The maiden export shipment of lead concentrate (containing Ag) is pending the receipt of the requisite Government approvals.

#### Mining Operations/Production

Mining operations performed in-line with targets during the quarter, with production from the underground operations continuing to ramp up and providing higher grade Zn ore to supplement the lower grade Zn material from the open pit.

Mill throughput and concentrate quality for the quarter were in-line with design specifications for a single ball mill operation, with improved quarter-on-quarter production.

### Perkoa Production (100% basis)

Description	Unit	September Quarter (3 mths Actual)	December Quarter (3 mths Actual)	Quarter-on-Quarter Increase	YTD (12 mths Actual)
TOTAL ORE PRODUCED	t	161,501	209,267	30%	543,143
Underground Ore Produced	t	75,667	87,154	15%	221,889
Milled Tonnes	DMT	144,216	172,759	20%	548,201
Zinc Concentrate Produced	DMT	17,217	28,958	68%	63,648
Lead Concentrate Produced	DMT	515	835	62%	2,236
Zinc Metal Contained	DMT	8,449	14,674	74%	32,215
Lead Metal Contained	DMT	277	369	33%	1,017
Silver Metal in Lead Concentrate	Kg	3,431	5,267	54%	14,541

A revised target for the installation and commissioning of the second ball mill is pending finalisation of the 2014 budget/business plan.

#### Working Capital Requirements

Blackthorn Resources continued to work with its JV partner Glencore Xstrata to finalise the CY2014 budget/business plan and to resolve the ~US\$30 million (Blackthorn Resources' share approximately US\$9 million) working capital funding options.

Pending the resolution of funding options, Glencore has provided the US\$30 million working capital to the project. No further working capital beyond the US\$30 million was required to 31 December 2013.

The Company plans to provide a market update regarding the Perkoa operations and funding status once the 2014 budget/business plan has been finalised and agreed with Glencore.

#### ► **MUMBWA EXPLORATION, ZAMBIA** (Blackthorn Resources 100%)

On 11 September 2013, the Company released the results of its detailed analysis on the Orion 3D IP dataset and the three new near-Kitumba targets to be drilled. These targets were based on detailed interpretation work which highlighted areas (separate from Kitumba) that presented IP anomalies hosted in prospective lithologies (Hooke granitoids) and in favourable structural positions – refer Appendix: Figure 4, Near-Kitumba Target Drill Hole Location Plan; Appendix: Table 2, Completed Near-Kitumba Target Drill Holes.

Assay results from the three Orion 3D IP target drill holes were reported during the quarter in accordance with the JORC Code (2012 Edition) – refer to the ASX Announcement – Mumbwa Project - Assay Results For Orion 3D IP Targets, dated 19 December 2013. A

copy of the ASX announcement is available on the company's website at [www.blackthornresources.com.au](http://www.blackthornresources.com.au).

KITDD\_040 (Figure 1 shown as P7EXT\_001 in the 11 September 2013 ASX Announcement) returned primary sulphide mineralisation along the NW trending Mumbwa Fault Zone within feldspar porphyry syenite and metasedimentary units.

Best copper intercepts included:

- 12m @ 0.55% Cu from 307m to 319m, and;
- 17m @ 0.42% Cu from 399m to 416m.

These results will be reviewed in the context of the regional geophysical interpretation and existing datasets, including surface geochemistry to generate and prioritise targets for future exploration.

#### ► **EXPLORATION, BURKINA FASO** (Blackthorn Resources 100%)

##### Base Metals Exploration Program

Processing and interpretation of the exploration data acquired during the previous quarters on the Northern Tenements surrounding the Perkoa Mine was undertaken during the quarter. Final assessment and reporting, as well as the design of the subsequent follow-up exploration program, is expected to be completed in Q3 FY2014.

##### *Poa and Guido*

A RAB drilling program was designed and implemented to test prospective induced polarization geophysical anomalies on two prospects on the Guido permit and three prospects on the Poa permit. These prospects are known as Semapoun West, Perkoa North-East, AF1, Gnonre and Perkoa West.

Processing of the assay results from the shallow RAB drilling undertaken on these two permits progressed during the quarter. A list of targets ranked on prospectivity has been generated and will be used for follow up exploration.

##### *Seboun and Sepaogo*

Data from the Seboun and Sepaogo VTEM survey has been merged and levelled with the earlier survey covering Poa and Guido. A geological interpretation of the merged dataset now covering the entire Northern Tenement holdings has been completed. Targets generated have been added to the priority list.

##### Southern Tenements

The Company has previously applied to relinquish the Southern Tenement holdings (consisting of the Naboue, Fafo and Bonzan permits) in order to focus on the exploration for base metals on the Northern Tenement holdings. Formal confirmation of acceptance of the relinquishment of these permits from the Ministry of Mines and Energy is still to be received. However, issuance of the decree is progressing and the Company expects to receive the formal notification during the current quarter.

## ► CORPORATE

### Available Cash Funds

As at 31 December 2013, the Company had cash on hand of \$16.3 million.

Exploration expenditure incurred during the quarter on the Mumbwa Project and Burkina Faso Exploration programs totalled \$2.9 million. In addition, during the quarter the Company incurred administration expenses of \$1.4 million, net of interest received.

Expenditure to be incurred in the next quarter on exploration and evaluation activities is forecast to be \$2.0 million. Expenditure to be incurred on administration expenses, net of interest received, is forecast to be \$1.1 million.

### Director Appointment

The Company announced the appointment of Mr Roger Higgins as a non-executive director, effective 1 January 2014. Roger has over 40 years of experience in senior management positions in the international mining industry, covering business and mine management, strategy and business development, project management, engineering and technical services, as well as the management of logistics, governance and government/community relations.

Roger's most recent position was Senior Vice President, Copper with Teck Resources. Prior to this role Roger worked in various senior roles with BHP Billiton Base Metals in Chile and South Australia, Minera Escondida in Chile and Ok Tedi Mining in PNG.

### CEO Appointment

Mr Mark Mitchell agreed to join the Company as its Chief Executive Officer. His appointment was effective from 1 January 2014.

Mark has extensive business experience in the mining industry, having held senior operational and general management roles with Perserverance Corporation, MPI Mines/Leviathan Resources, Lihir Gold Co and more recently Newcrest Mining Limited. Mark brings operational and corporate experience in a variety of fields including management responsibility for the construction, development and operation of mine site activities and services in Australia and challenging overseas environments, longer term strategic planning, management of social and community engagement programs and leadership development.

### Issued Capital

Issued capital at 31 December 2013 was:

- 164,285,950 ordinary shares (listed);
- 1,850,000 employee options, with exercise price \$1.63, expiring 27 June 2015 (unlisted).

During the quarter, 1,500,000 employee options with an exercise price \$1.63 lapsed.



### AGM

The Company held its Annual General Meeting on 28 November 2013. All resolutions put to shareholders at the AGM were carried on a show of hands.

**Should you require further information please contact:**

**Mark Mitchell**  
**Chief Executive Officer**  
**Ph: +61 2 9357 9000**



*Mumbwa Project*

The information in this report that relates to Kitumba Infill Drilling Exploration Results at the Mumbwa Project in Zambia is based on information compiled by Mr Michael J Robertson, MSc, Pr.Sci.Nat., MSAIMM, a Competent Person and a Professional Natural Scientist registered with the South African Council for Natural Scientific Professions which is a Recognised Professional Organisation (RPO). Mr Robertson has 22 years' experience in mineral exploration and is a full-time employee of the MSA Group. Mr Robertson has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Robertson consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report which relates to Kitumba Step-out Drilling Exploration Results at the Mumbwa Project in Zambia is extracted from the report entitled "Assay Results For Orion 3D IP Targets" released to ASX on 19 December 2013 which is available on the ASX website at [www.asx.com.au](http://www.asx.com.au) or the BTR website at [www.blackthornresources.com.au](http://www.blackthornresources.com.au). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

**ATTRIBUTIONS**

The information in this report which relates to Mineral Resources at the Mumbwa Project in Zambia is extracted from the report entitled "Kitumba Mineral Resource Update" released to ASX on 16 December 2013 which is available on the ASX website at [www.asx.com.au](http://www.asx.com.au) or the BTR website at [www.blackthornresources.com.au](http://www.blackthornresources.com.au). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of estimates of Mineral Resources that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

The information in this report which relates to mining analysis and Ore Reserves in relation to the Mumbwa Project is based on information compiled by Mr Joe McDiarmid, who is a Chartered Professional member of the Australasian Institute of Mining and Metallurgy (MAusIMM). Mr McDiarmid has 17 years' experience in reserve evaluation, mine planning and operations and is a full-time employee of RungePincokMinarco Limited. Mr McDiarmid has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined by the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr McDiarmid has consented to the inclusion in this report of the matters based on his information in the form and context in which it appears.

**U.S. ownership restrictions**

The ordinary shares of the Company (the "Shares") have not been, and will not be, registered under the U.S. Securities Act of 1933 (the "U.S. Securities Act") or the securities laws of any state or other jurisdiction in the United States. In addition, the Company has not been registered under the U.S. Investment Company Act of 1940, as amended (the "U.S. Investment Company Act"), in reliance on the exception provided by section 3(c)(7) thereof. Accordingly, the Shares cannot be held at any time by, or for the account or benefit of, any "U.S. person", as defined in Rule 902(k) under the U.S. Securities Act, who is not both a "qualified institutional buyer" ("QIB"), as defined in Rule 144A under the U.S. Securities Act, and a "qualified purchaser" ("QP"), as defined in Section 2(a)(51) of the U.S. Investment Company Act. Any U.S. Person who is not both a QIB and a QP (or any investor who holds Shares for the account or benefit of any U.S. Person who is not both a QIB and QP) is an "Excluded U.S. person". The Company may require an investor to complete a statutory declaration as to whether they (or any person on whose account or benefit it holds Shares) are an Excluded U.S. person. The Company may treat any investor who does not comply with such a request as an Excluded U.S. person. The Company has the right to: (i) refuse to register a transfer of Shares to any Excluded U.S. person; (ii) require any Excluded U.S. person to dispose of their Shares; or (iii) take such other action as it deems necessary or appropriate to enable it to maintain the exception from registration under Section 3(c)(7) of the U.S. Investment Company Act. To monitor compliance with these foreign ownership restrictions, the ASX's settlement facility operator, ASX Settlement and Transfer Corporation Pty Limited (ASTC) has classified the Shares as Foreign Ownership Restricted financial products and put in place certain additional monitoring procedures.

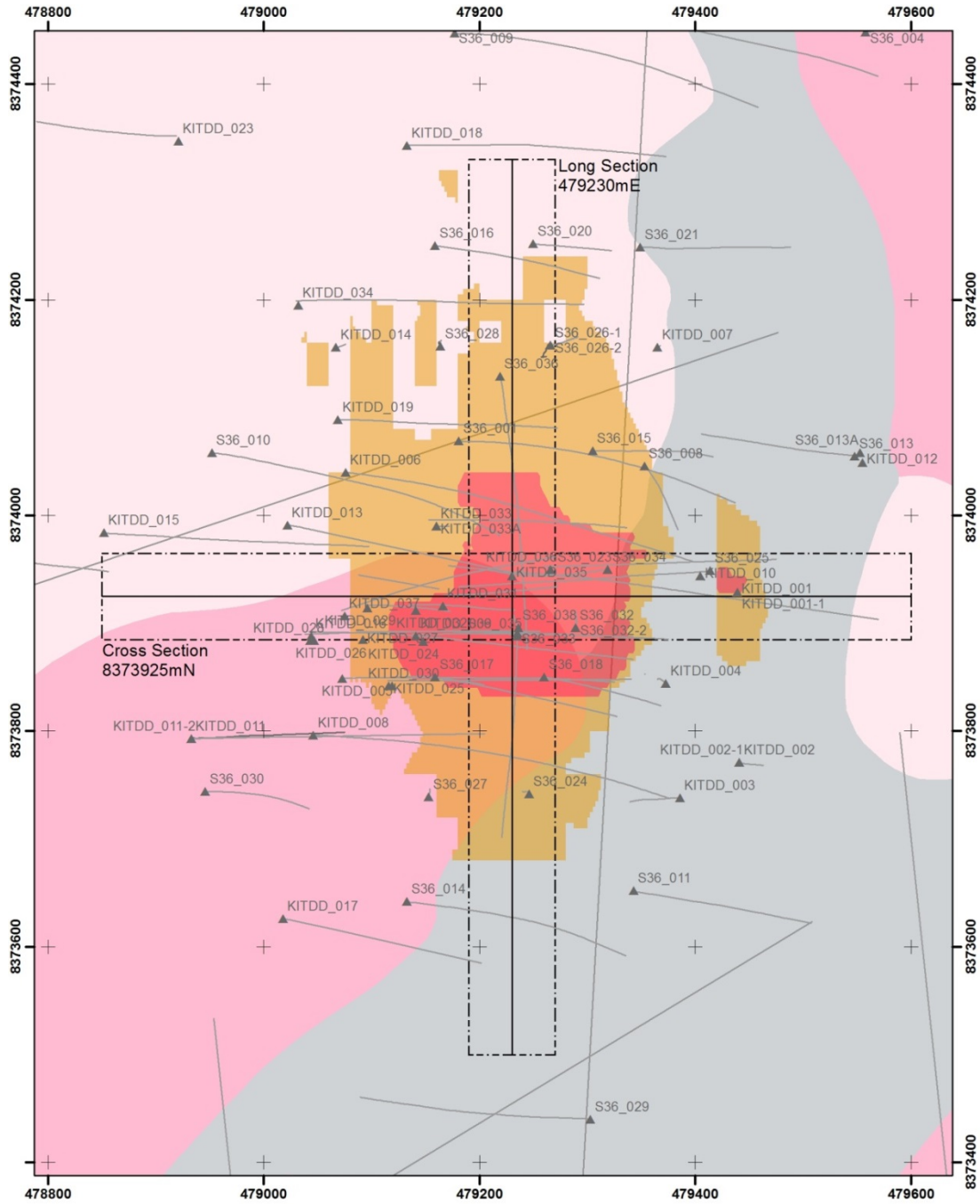
## APPENDICES

### TENEMENTS SUMMARY

Concession	Location	Tenement Number	Current Quarter	Previous Quarter
Perkoa Exploitation Licence <sup>(1)</sup>	Burkina Faso	07-143	27.3%	27.3%
Guido Exploration Licence	Burkina Faso	13-118	100%	100%
Poa Exploration Licence	Burkina Faso	13-119	100%	100%
Sepaogo Exploration Licence	Burkina Faso	11-335	100%	100%
Seboun Exploration Licence	Burkina Faso	11-336	100%	100%
Fafo Exploration Licence <sup>(2)</sup>	Burkina Faso	11-152	100%	100%
Bonzan Exploration Licence <sup>(2)</sup>	Burkina Faso	13-049	100%	100%
Naboue Exploration Licence <sup>(2)</sup>	Burkina Faso	13-050	100%	100%
Mumbwa Permit	Zambia	8589-HQ-LPL	100%	100%
Musafwa Permit	Zambia	14265-HQ-LPL	100%	100%
Kachindu Permit	Zambia	14266-HQ-LPL	100%	100%
Kabwera Permit	Zambia	14267-HQ-LPL	100%	100%
Nyoko Permit	Zambia	16385-HQ-LPL	100%	100%

(1) At 31 December 2013 the Company, through its wholly-owned subsidiary Blackthorn Investments Pty Ltd, effectively held a 27.3% interest in the Perkoa Project. Joint venture partner Glencore Xstrata held a 62.7% interest, with the remaining 10% held by the State of Burkina Faso.

(2) Applications to relinquish tenements lodged but formal confirmation of acceptance relinquishment from the Ministry of Mines and Energy is still to be received.



Mumbwa Project Phase 7 Mineral Resource Estimate Update

- ▲ — Drillholes used in Estimate
- Section Line
- Cu 1% Measured
- Cu 1% Indicated
- Section Area (80m)



**Figure 1: Kitumba drill holes showing the footprint of the 1% Cu cut-off Measured and Indicated material. Also showing 80m cross section and long section location – refer to Figure 2 and Figure 3 respectively.**

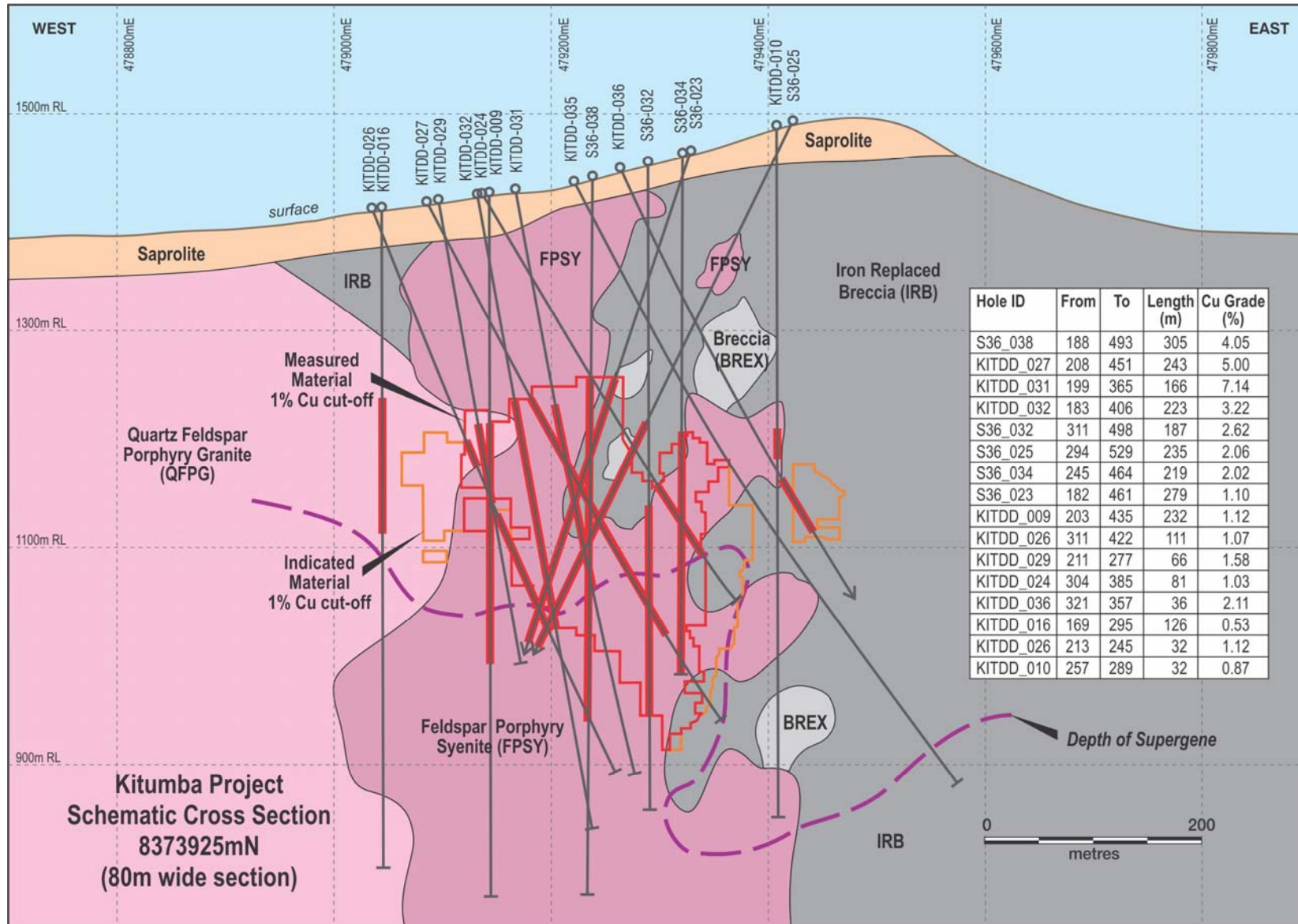


Figure 2

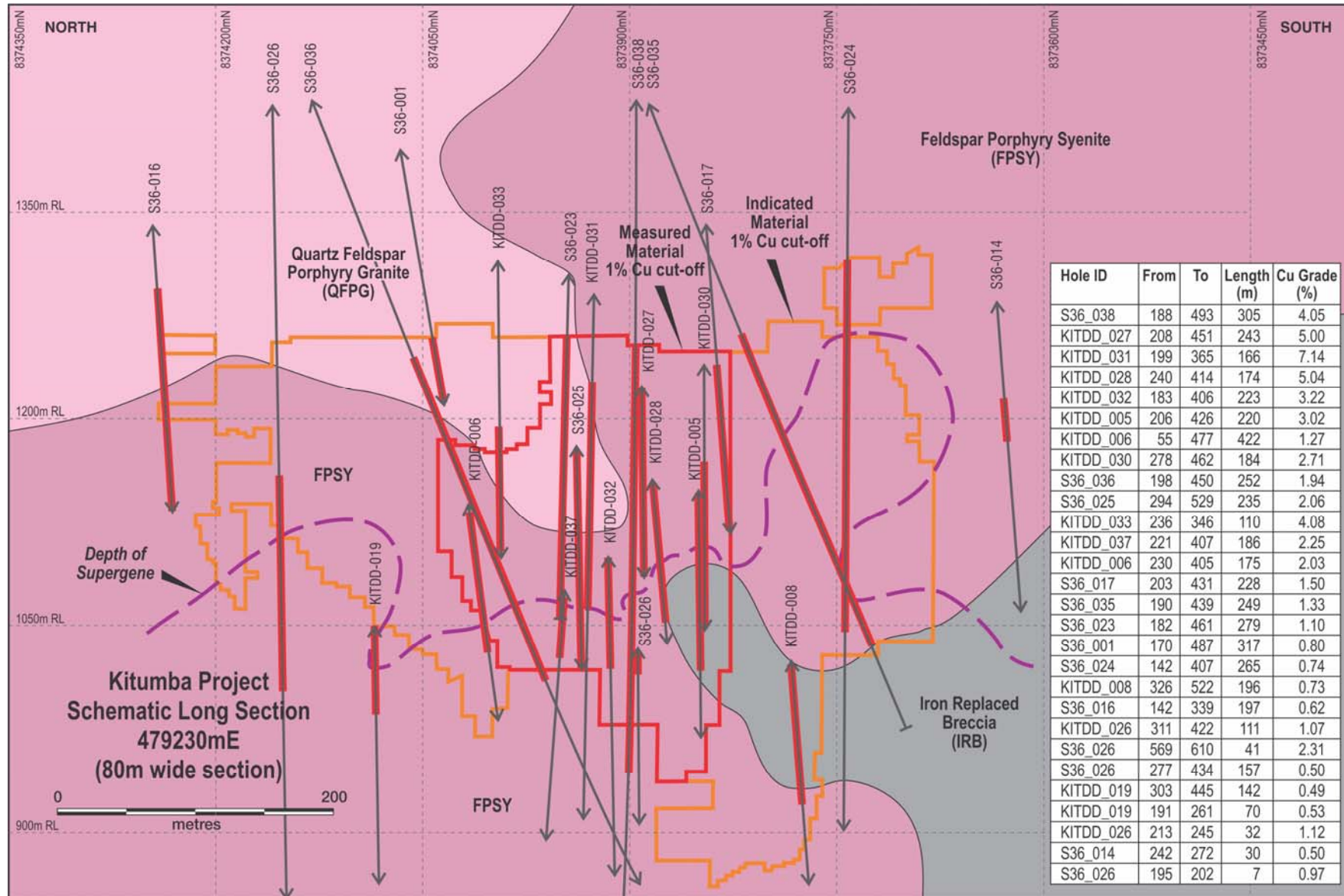
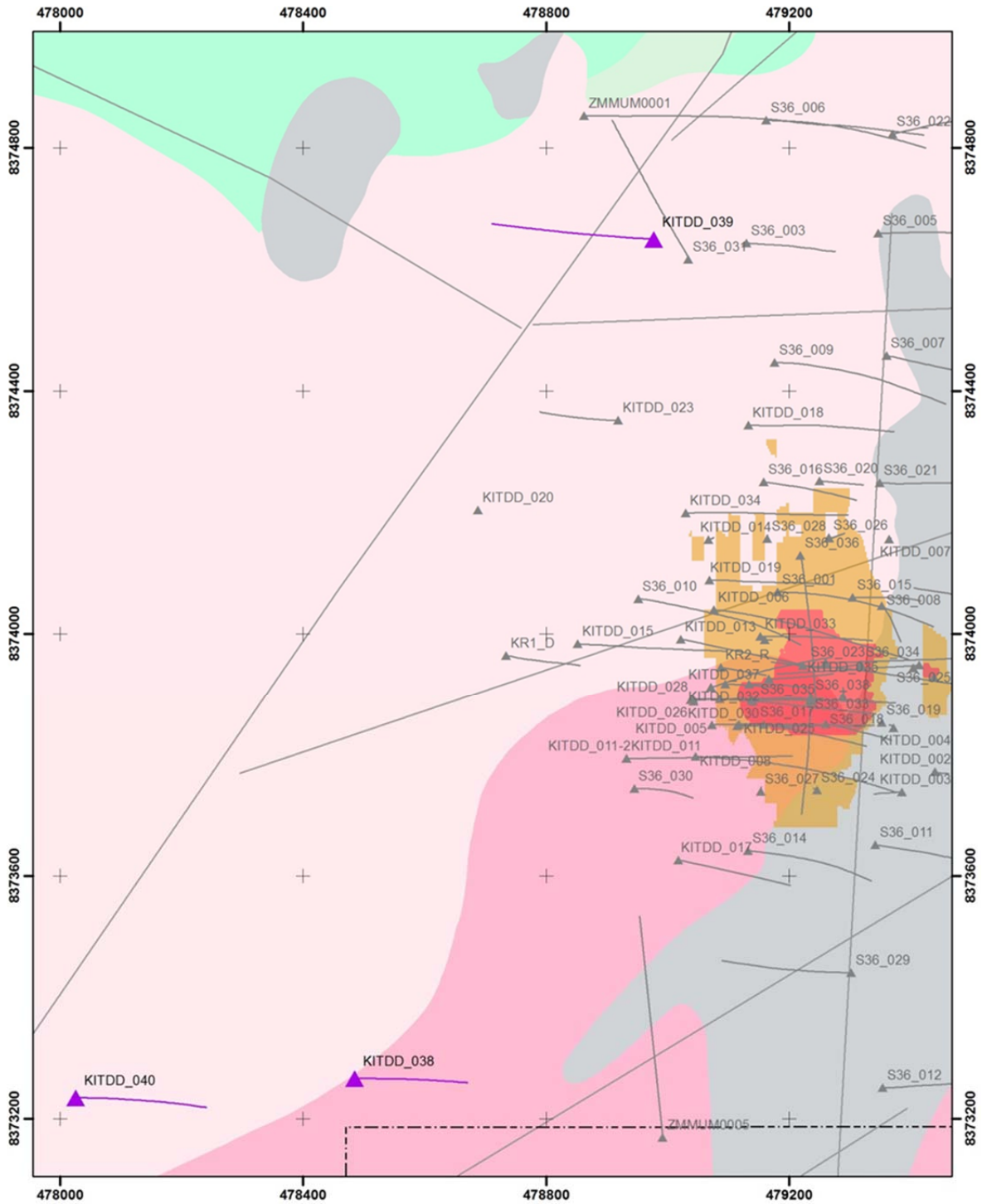


Figure 3



**Mumbwa Project Near Kitumba Target Drill Holes**

- ▲ Satellite drill hole traces
- ▲ Mumbwa traces
- Cu 1% Measured
- Cu 1% Indicated



**Figure 4: Near-Kitumba Target Drill Hole locations for KITDD\_038, KITDD\_039 and KITDD\_040.**

**Table 1: Completed Phase 7 Drill Holes**

BH_ID	X	Y	Z	Azimuth	Dip	EOH
KITDD_024	479141	8373889	1423.8	90	60	449.7
KITDD_025	479113	8373848	1421.6	90	81	530.6
KITDD_026	479044	8373889	1410	90	68	557.6
KITDD_027	479093	8373889	1416.4	90	60	539.9
KITDD_028	479044	8373889	1410	90	60	562.4
KITDD_029	479092	8373920	1413.5	90	80	419.7
KITDD_030	479113	8373848	1421.6	90	68	575.8
KITDD_031	479173	8373920	1426.4	90	80	539.6
KITDD_032	479132	8373920	1420	90	80	581.6
S36_026-2	479266	8374158	1439	0	90	614.8-707.2
S36_028-1	479164	8374157	1428	0	90	524.5-986.3
KITDD_033	479150	8373998	1415.6	90	70	527.5
KITDD_034	479025	8374200	1416	90	70	728.5
KITDD_035	479223	8373948	1435	90	65	651
KITDD_036	479260	8373948	1452	90	65	449.5
KITDD_037	479081	8373914	1413	70	70	563.4

**Table 2: Completed Near-Kitumba Target Drill Holes**

BH_ID	X	Y	Z	Azimuth	Dip	EOH
KITDD_038	478495	8373265	1368	90	-60	401.6
KITDD_039	478987	8374646	1394	270	-65	476.9
KITDD_040	478034	8373234	1317	90	-60	423.2