

ASX Code: BML

# TO: COMPANY ANNOUNCEMENTS OFFICE ASX LIMITED

DATE: 19 NOVEMBER 2015

**"THIS IS A PRIORITY ITEM"** 

SULPHIDES INTERSECTED IN TWO OUT OF THE THREE HOLES DRILLED AT BML'S 100% OWNED PL 59/2008 IN BOTSWANA

PL 59/2008 (PL 59) MAIBELE NORTH EXTENSION:

- THE THREE HOLE DRILL PROGRAM HAS NOW BEEN COMPLETED AND TESTED 3 OF MANY VTEM AND SQUID ANOMALIES OVER A DISTANCE OF 3 KM.
- ONE DRILL HOLE WAS DRILLED IN EACH OF THE THREE SQUID ANOMALIES.
- TWO OF THE THREE DRILL HOLES INTERSECTED SIGNIFICANT PYRRHOTITE:
  - $\circ~$  AN 18M THICK ZONE OF DISSEMINATED SULPIDES (PYRRHOTITE) AT A DOWNHOLE DEPTH OF ~210M IN HOLE 1.
  - $\circ~$  A 6M THICK ZONE OF DISSEMINATED AND MINOR SEMI-MASSIVE SULPHIDES FROM 250M IN HOLE 3.
- THE INTERSECTIONS PROVIDE PROOF OF THE GEOLOGICAL MODEL AND TARGETING STRATEGY EMPLOYED BY BML AND PROVIDES GREAT ENCOURAGEMENT FOR THE FUTURE DISCOVERY OF POTENTIAL NI-SULPHIDE ACCUMULATIONS IN THE REGION.

# THE MAIBELE NORTH EXTENSION PROSPECT IS ONLY 4KM TO THE EAST OF THE MAIBELE NORTH JORC RESOURCE HELD BY BML AND JV PARTNER BCL LIMITED.

The 3 hole, 775m exploratory RC drill program designed to test a number of prominent EM Conductors identified by recent SQUID EM surveys is now complete. Significant sulphide zones reminiscent of the host sulphide mineralisation from the nearby Maibele North JV project were intersected in 2 out of the 3 holes.

The first hole, MNRC001, was drilled to a depth of 250m into conductor E4 and intersected a thick zone of disseminated pyrrhotite within a medium grained amphibolite body from between 200 to 218m down hole. The intersection lies close to the predicted downhole position of the modelled SQUID conductor plate.

The third hole, MNRC003, was drilled to a depth of 275m into conductor E1 and intersected a 6m zone of disseminated pyrrhotite from 250m down hole, with a number of semi-massive fragments evident in the interval from 250m to 251m.

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The second hole, MNRC002, intersected a broad zone of disseminated pyrite that was not thought sufficiently conductive to explain the SQUID EM anomaly.

This intersections are highly significant because:

- They are the first and only drill holes into the new prospect which lies between 4km to 7km east of Maibele North along an interpreted Ni-mineralised horizon
- They have confirmed that the large (>3km long) VTEM and SQUID EM anomaly are associated with sulphide mineralisation
- They demonstrate that sulphide mineralising processes similar to that occurring at Maibele North are possibly present at Maibele North Extension
- They verify the interpretation of a preferential regional geological horizon for sulphide mineralisation that encompasses Maibele North, Airstrip Cu, anomaly 10380a and the three 100%-owned BML projects Maibele North Extension, Mashambe and Mashambe NE.
- They confirm the mineralised potential of the area and highlight the vast area of unexplored prospective terrain within BML's portfolio.

The Board of Botswana Metals is extremely excited by the discovery of sulphide mineralisation so far along strike from Maibele North. The drill program has demonstrated the great mineral potential of the region and supports BML's exploration strategy of securing a majority landholding over the Limpopo Mobile Belt in Botswana.

Furthermore, the Board is highly encouraged by the continuing high success rate of the SQUID EM technique in identifying sulphide mineralisation in the region. These holes are the first regional test of SQUID EM conductors and provide confidence for testing of the additional strong conductors evident at a further 6 high priority targets on both 100% owned BML ground and JV ground with BCL. All of the high priority targets contain conductors associated with ultramafic rock types and encouraging geochemical anomalies and remain to be tested.

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Figure 1: Location of the PL 59/2008 drill holes at Maibele North Extension showing the >3km long VTEM anomaly (light blue to red colours on background image) and recently detected SQUID EM conductors (Pink Rectangles). The current holes are marked as MNRC001, 002, 003. Background = regional VTEM image.

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Figure 2: Cross Section through MNRC001 showing the down-hole location of the disseminated sulphide intersection in relation to the modelled SQUID EM conductor. This is the first hole into the very strong, 500m long E4 conductor.





Figure 3: Cross Section through MNRC003 showing the down-hole location of the sulphide intersection in relation to the modelled SQUID EM conductor.

It is common within the Maibele North orebody for thick disseminated sulphide intersections to coalesce into narrower massive and/or semi-massive zones within a very short distance. The presence of sulphides at Maibele North Extension provides proof of the geological model and targeting strategy employed by BML and provides great encouragement for the future discovery of potential massive sulphide accumulations at the prospect.

## **Drill Program Details**

An initial program of 3 drill holes for 775 metres of RC drilling was proposed to test the conductors at Maibele North Extension. These conductors rank as the highest priority targets due to:

- Close proximity along strike to Maibele North
- Multiple conductors of increasing conductivity (to over 1500s)
- Shallow depth (~165m)

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 Multiple targets of a cumulative strike to 900m – possibly indicates a large system with potential for numerous orebodies

Target	X (UTM36)	Y (UTM36)	ELEV (m)	INCLINATION	AZI	DEPTH (m)	Progress
MNRC003	636747	7597588	865	60	330	275	Complete
MNRC002	637432	7597918	865	60	330	250	Complete
MNRC001	638766	7598208	865	60	335	250	Complete

Table 1: Details of the proposed holes for Maibele North Extension.



Figure 4: Location of the PL 59/2008 proposed drill holes at Maibele North Extension and the prospects spatial relationship to the Maibele North orebody. Background = regional VTEM image.





Figure 5: Location of the PL 59/2008 prospects in relation to Maibele North and the interpreted Maibele North mineralised trend. Background is the regional VTEM image.



Figure 6: Shows the potential strike length and its direction through BMLs 100% owned PL 59/2008. The three VTEM anomalies show up in red at Maibele North Extension and Mashambe.

The market will be kept informed as assay results become available.



For more information:

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The information in this report that relates to Exploration Results is based on, and fairly represents, information and supporting documentation compiled by BML staff on site and provided to Mr Steve Groves who is a Member of The Australasian Institute of Mining and Metallurgy. Mr Groves is a consulting geologist to BML and has previously been employed as the Exploration Manager at BML. Mr Groves has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Groves consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

# APPENDIX 1 – JORC Code, 2012 Edition – Table 1

# Section 1 Sampling Techniques and Data

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

CRITERIA	JORC Code Explanation	Commentary
Sampling techniques	<ul> <li>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be</li> </ul>	<ul> <li>The holes in discussed in this release are Reverse Circulation. Samples are taken at 1m intervals using a riffle splitter attached to the cyclone on the drill rig.</li> </ul>

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CRITERIA	JORC Code Explanation	Commentary
	required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	
Drilling techniques	<ul> <li>Drill type (eg core, reverse circulation ,openhole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face sampling bit or other type, whether core is oriented and if so, by what method, etc).</li> </ul>	<ul> <li>All holes in this release are Reverse Circulation with a face-sampling hammer bit.</li> <li>Drillholes are mostly orientated between 320° and 350°, inclined between 50° and 65°.</li> </ul>
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	<ul> <li>Sample recovery was observed to be adequate for the drill hole reported on. Where issues were encountered with sample recovery, it was due to holes in the inner tubes of the drill rods and rectified immediately. No sample recovery issues were observed in the sulphide zone.</li> </ul>
Logging	<ul> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul> <li>RC chips are sieved and washed prior to being logged. A record of each meter is kept as washed chips in 20m RC chip trays</li> <li>RC cuttings are logged in appropriate detail including identification of lithology, structure, alteration, mineralization and other notable characteristics. All RC cuttings will be photographed with beginning, ending and intermediate intervals clearly marked on each box.</li> </ul>

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CRITERIA	JORC Code Explanation	Commentary		
<b>CRITERIA</b> Sub-sampling techniques and sample preparation	<ul> <li>JORC Code Explanation</li> <li>If core, whether cut or sawn and whether guarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>Samples for assay shall be collected on a 1 sample per metre basis.</li> <li>The weight of sample will depend on the element or mineral and will be defined by the BCL team.</li> <li>A clean, dry splitter free of rust and damage should be used.</li> <li>Care should be taken to ensure the sample is not spilt or slopped when transferred to the splitter, and is evenly spread across the riffles.</li> <li>The best way achieve this is to roll up the bulk bag top, carefully lay the bag upside down on the riffle, and then pull the bag up. This should allow the sample to spread equally over the riffle bed.</li> <li>The sample should be assisted through the splitter by tapping the sides with a rubber mallet if necessary.</li> <li>Similarly, clods of sample should not be forced through the splitter, but apportioned manually in a representative manner.</li> <li>Excessively damp or wet samples should not be put through the splitter. These should be sampled by tube or grab sampling (the later only were nothing else is possible).</li> <li>Damp and wet samples should not be put through the riffle splitter. These should be formulated to dry naturally before being weighed and then put through the riffle splitter. Where this is not practical, e.g. during the rainy season a strategy should be thoroughly cleaned between each sample, preferably with an air gun attached to the drill rig compressor. Material adhering to the splitter is also a source of potential contamination which is avoided by ensuring the splitter is not corroded or bent, kept dry and cleaned ot the rig compressor.</li> <li>Where a high pressure air hose attached to the rig compressor is not available a medium strength bristle note the splitter and then put through the splitter is not corroded or bent, kept dry and cleaned to the rig compressor is not available a medium strength bristle</li> </ul>		
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CRITERIA	JORC Code Explanation	Commentary
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</li> </ul>	<ul> <li>Blanks, duplicates and standards are inserted at a rate of approximately 13%, although the blank material is appears to have elevated values of Ni and Cu. The duplicates are prepared and inserted by the laboratory and are not inserted blindly by the onsite geologist. The performance of the CRM analyses is acceptable.</li> </ul>
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>No verification work of significant intersections has been completed</li> <li>The Competent Person confirmed the collar positions and sampling intervals onsite.</li> <li>No twin holes have been drilled</li> <li>No statistical adjustments to data have been applied</li> </ul>
Location of data points	<ul> <li>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>All of the drillhole collars have been surveyed using a DGPS.</li> <li>Down-the-hole surveys were conducted for all holes.</li> <li>The grid system for the project is UTM WGS84.</li> <li>The topography model was derived from the drillhole collar elevations and modelled in Leapfrog.</li> </ul>

# **Section 2 Reporting of Exploration Results**

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

CRITERIA	JORC Code Explanation	Commentary
<i>Mineral tenement and land tenure status</i>	<ul> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to</li> </ul>	<ul> <li>The results reported in this announcement are located in PL 59/2008 which is a granted Exploration Licence held by African Metals Limited, a 100% owned subsidiary of Botswana Metals Limited.</li> <li>PL 59/2008 is 100% owned by BML</li> <li>PL 59/2008 was recently extended for a further two years and is in good standing.</li> </ul>

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CRITERIA	JORC Code Explanation	Commentary		
	operate in the area.			
Exploration done by other parties	<ul> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul> <li>Interpretations and conclusions in this announcement refer in part to results generated by historic exploration work conducted by Roan Selection Trust, Falconbridge, Cardia Mining and Botswana Metals.</li> <li>Botswana Metals considers all previous exploration work to have been undertaken to an appropriate professional standard.</li> </ul>		
Geology	<ul> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	PL 59/2008 contains prospects hosted within the Magogaphate Shear Zone - a major geological structural feature, generally considered to mark the boundary between the Archaean aged (>2.5 billion year old) Zimbabwean Craton and the Limpopo Belt or Limpopo Mobile Zone (LMZ). The nickel-copper deposits of Selebi Phikwe lie within the northern part of the Central Zone of the Limpopo Mobile Belt, whilst the nickel copper deposits of Phoenix, Selkirk and Tekwane lie in the Zimbabwean Craton. The Central Zone of the LMZ comprises variably deformed banded gneisses and granitic gneisses, infolded amphibolites and ultramafic intrusions that that have the potential to host Ni-Cu sulphide mineralization. Ni-Cu-PGE mineralization at Maibele North and Airstrip copper is spatially associated with an ultramafic intrusion.		
Drill hole Information	<ul> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all material drill holes: <ul> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does</li> </ul>	Refer to Appendix 1.		

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CRITERIA	JORC Code Explanation	Commentary			
	not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.				
Data aggregation methods	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul> <li>With regards to the Maibele North MRE:</li> <li>Mineralised intersections are composited to 2 m lengths per Zone.</li> <li>No discernible relationship exists regarding sample length and grade.</li> <li>With Regards to reported drill intersections</li> <li>Where uneven sampling intervals have contributed to an averaged result, the result has been calculated by a weighted average technique that incorporates the interval width of each contributing sample.</li> <li>A grade cut off of 0.3% and internal dilution of &lt;2m has been used in the calculation of significant intercepts.</li> <li>No grade truncations have been applied to the data.</li> <li>The Maibele North ore is interpreted to be genetically and mineralogically similar to the ore treated at the nearby Selebi Phikwe smelter where current recovery grades in the flotation plant average 84% for Ni and 95% for Cu. Where Ni Eqv calculations have been undertaken on historic assay results it has been assumed that similar high recoveries will be achievable. The current drill program has been designed to assess the metallurgical properties of the Maibele North mineralisation and the indicative recoveries will be published in due course.</li> <li>Given that that the Maibele North project is currently the subject of a Joint Venture with the nearby Mine and Smelter operator, BCL, BML assumes that no impediments in recovering and selling the metals contained in the deposit would exist provided an viable economic resource can be defined.</li> </ul>			
Relationship between mineralisation widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</li> </ul>	<ul> <li>The precise geometry of the mineralization with respect to the drill hole angle is not known and thus, all drill hole results are reported as down hole length.</li> <li>The drill holes in the current program are inclined reconnaissance holes based on the average dip of exposed units. The orientation of the mineralization is unknown and true width is unknown.</li> <li>Geotechnical logging is under way to address the geometry of mineralisation.</li> </ul>			

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CRITERIA	JORC Code Explanation	Commentary		
Diagrams	<ul> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</li> </ul>	<ul> <li>Plan view and/or cross section maps of the reported drill holes are included in this announcement.</li> </ul>		
Balanced reporting	<ul> <li>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</li> </ul>	• The results in this announcement are interpreted to lie within the plane of a mineralized trend that is coincident with an ultramafic intrusion and encompasses the Maibele North Extension Prospect, Maibele North and Airstrip Copper Prospects.		
Other substantive exploration data	<ul> <li>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</li> </ul>	The location of drill holes referred to in this document were based on interpretation of Airborne and ground geophysical data by professional, independent geophysical consultants. VTEM and SQUID EM methods were used and processing and interpretation was completed by Spectral Geophysics from Gaborone, Botswana		
Further work	<ul> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul> <li>The drilling in this release is first pass, and if successful in discovering sulphide mineralisation, follow up work would include further geophysical surveys and follow up drilling</li> </ul>		

# **APPENDIX 2 – Drill Hole Details**

Target	X (UTM36)	Y (UTM36)	ELEV (m)	INCLINATION	AZI	DEPTH (m)	Progress
MNRC003	636747	7597588	865	60	330	275	Complete
MNRC002	637432	7597918	865	60	330	250	Complete
MNRC001	638766	7598208	865	60	335	250	Complete

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