

## Musgrave Commences High Powered EM Survey at Mamba

- High powered deep penetrating EM survey has commenced at the Mamba project in the Fraser Range
- 11 high priority nickel-copper targets prioritised for ground EM
- Priority target M12 is associated with elevated platinum and palladium in shallow historical aircore drilling. The M12 target is not effectively drill tested
- The Mamba nickel-copper project is in the same belt as the world class Nova-Bollinger nickel-copper sulphide discoveries
- Target signatures consistent with mafic-ultramafic intrusive bodies, the prospective host for nickel-copper sulphide mineralisation in the district

Musgrave Minerals Ltd (“Musgrave” or “the Company”) (ASX:MGV) is pleased to announce the commencement of a deep penetrating ground electromagnetic (“EM”) survey on the wholly owned Mamba Exploration Licence (E28/2405) in the Fraser Range (Figure 1).

The ground EM survey will cover up to 11 priority nickel-copper targets (Figure 2) identified through the interpretation of detailed aeromagnetic and gravity and geological data. The targets show magnetic characteristics consistent with mafic-ultramafic intrusive bodies, the prospective host for nickel-copper sulphide mineralisation in the district.

High priority target M12 (Figure 3) is very close to a historical aircore drill hole (FRNAC663) with elevated copper (78ppm) and very anomalous platinum and palladium (Pd: 164ppb; Pt: 176ppb) from an end of hole 2m composite sample within weathered meta-gabbro at a depth of 51-53m. The only multi-element sampling

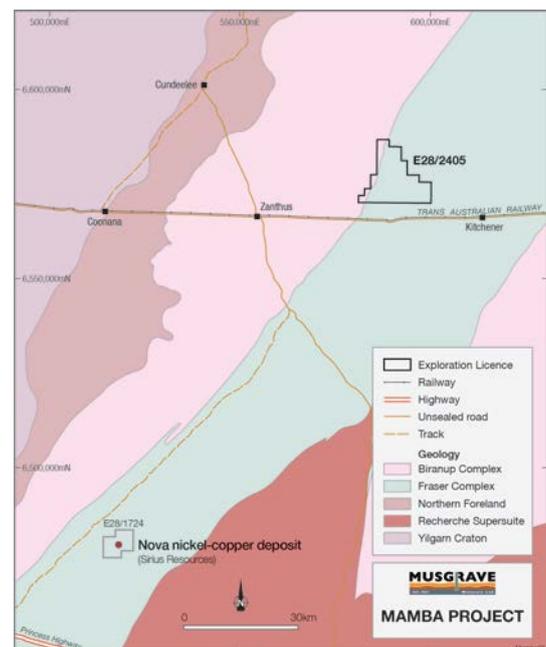


Figure 1: Mamba Project Location

undertaken by the previous explorer was at the end of hole. Musgrave will resample the existing drill spoils to confirm the anomaly. No historical drilling is present near any of the other targets.

The Mamba nickel-copper project is in the same belt as the world class Nova-Bollinger nickel-copper sulphide discoveries of Sirius Resources NL in south-eastern WA. The tenement is located only 5km from the Trans Australian rail line access corridor (Figure 1).

Musgrave's Managing Director Rob Waugh said: "We are excited about using this new high powered EM system on our high priority nickel-copper targets at Mamba. The quality of the targets interpreted from the detailed aeromagnetic survey and regional gravity are very encouraging in what is a highly prospective and underexplored part of the Fraser Range. The EM is the next critical step in the exploration process."

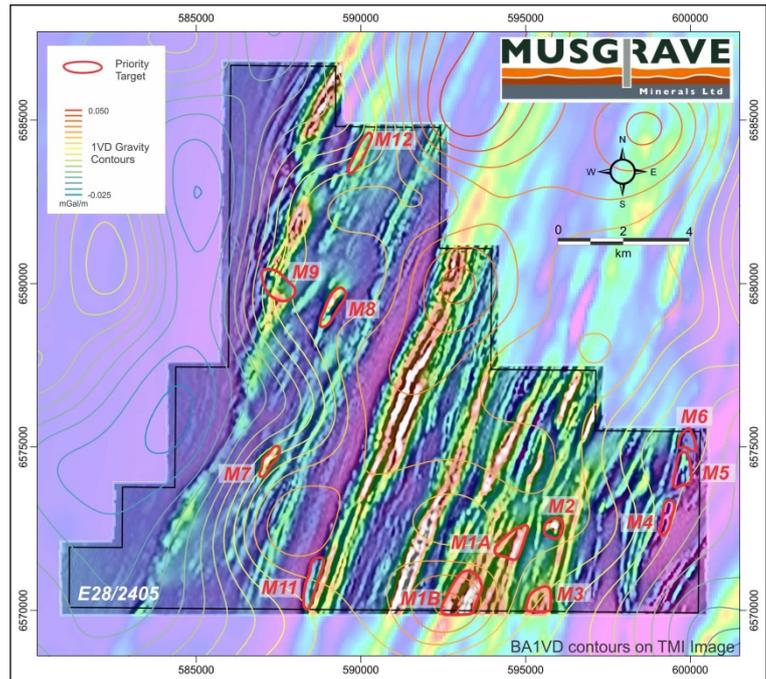


Figure 2: Priority Targets on Detailed Aeromagnetic data

The high powered (150-200A) EM system being used has been developed to detect highly conductive "Nova-Bollinger" style massive nickel-copper sulphide bedrock conductors to a depth of more than 700m below surface. The system will be optimised to test individual targets. The integration and interpretation of regional gravity data has helped prioritise individual targets (Figure 2). A strong positive gravity response could reflect an accumulation of denser mafic magma at depth, the potential host to nickel-copper sulphide mineralisation.

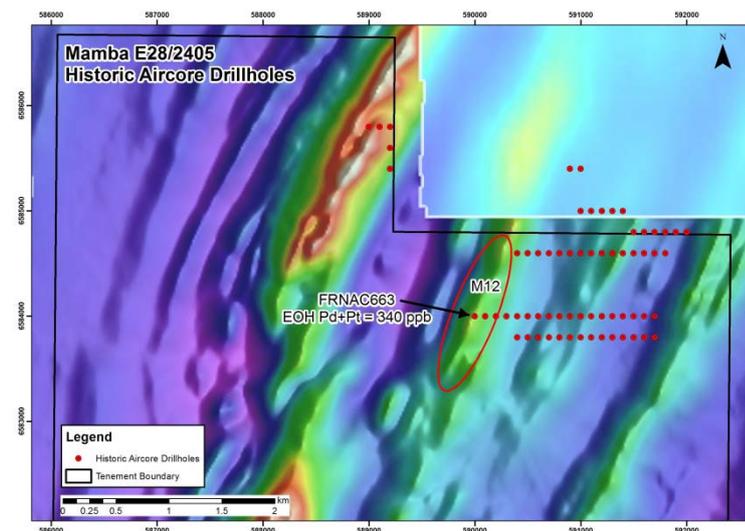


Figure 3: Historical Aircore Drill Hole Locations on Detailed Aeromagnetic Image

The targets comprise two broad target styles interpreted from the aeromagnetic data (Figure 2) and integrated with the regional gravity data. The first style includes discrete magnetic highs or lows interpreted to be mafic/ultramafic intrusive bodies prospective for magmatic nickel-copper deposits and the second style includes de-magnetised zones associated with major structural intersections or fold closures that could represent increased areas of fluid flow and potential mineralisation.

## ***Follow-up Exploration***

Follow-up exploration will include resampling of selected historical aircore drill holes followed by a combination of aircore and reverse circulation (“RC”) drilling to test specific bedrock conductors to identify the potential footprint of massive nickel-copper sulphide mineralisation.

The ground EM survey is expected to take approximately four weeks to complete with results expected in early June. A heritage survey has been completed over the entire tenement in preparation for drilling.

### ***Enquiries:***

*Robert Waugh  
Managing Director  
Musgrave Minerals Ltd  
+61 8 9324 1061*

### ***About Musgrave Minerals***

*Musgrave Minerals Ltd is an active Australian base and precious metals explorer with a large exploration footprint in the Musgrave Province in South Australia and a new nickel-copper sulphide project in the highly prospective Fraser Range region of Western Australia. Musgrave has a powerful shareholder base with four mining and exploration companies participating as cornerstone investors.*

### ***Competent Person’s Statement***

*The information in this report that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled and/or thoroughly reviewed by Mr Robert Waugh, a Competent Person who is a Fellow of the Australasian Institute of Mining and Metallurgy (AusIMM) and a Member of the Australian Institute of Geoscientists (AIG). Mr Waugh is Managing Director and a full-time employee of Musgrave Minerals Ltd. Mr Waugh has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration 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 Waugh consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.*



# Mamba Project JORC TABLE 1

## Section 1 Sampling Techniques and Data

Criteria	Explanation	Commentary
<i>Location of data points</i>	<i>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.</i>	All maps and locations are in UTM grid (GDA94 Z51) and have been measured by hand-held GPS with an accuracy of $\pm 4$ metres.  EM survey loops and receiver data points are laid out using handheld GPS units.  Topographic control with 2-5m accuracy using published maps is considered sufficient for modelling of EM survey results.
	<i>Specification of the grid system used.</i>	Co-ordinates are in UTM grid (GDA94 Z51)
	<i>Quality and adequacy of topographic control.</i>	Topographic control with 2-5m accuracy using published maps and hand held GPS is considered sufficient for modelling of EM survey results.
<i>Data spacing and distribution</i>	<i>Data spacing for reporting of Exploration Results.</i>	Loops are laid out as squares or rectangles measuring either 1000x1000m or 1200x800m. Receiver data is acquired at 50m intervals along east-west oriented lines spaced at 150m intervals.
	<i>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</i>	The presence of mineralisation has not yet been demonstrated. There is no Mineral Resource or Reserves under the classification applied in the 2012 JORC Code.
	<i>Whether sample compositing has been applied.</i>	No sample has been undertaken.
<i>Orientation of data in relation to geological structure</i>	<i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i>	The precise dip and strike of mineralisation is not yet known and it is unclear at this stage whether any sampling has a set bias.
	<i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</i>	The geological strike is highly variable due to post emplacement deformation but the overall trend of stratigraphy is north-east. No orientation based sampling bias is known at this time.
<i>Audits or reviews</i>	<i>The results of any audits or reviews of sampling techniques and data.</i>	No external audits or reviews of modelling techniques and data have been undertaken.

## Section 2 Reporting of Exploration Results

Criteria	Explanation	Commentary
<i>Mineral tenement and land tenure status</i>	<i>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.</i>	All data is within Mamba Project tenement E28/2405 in the Fraser Range of Western Australia located on Vacant Crown Land.  E28/2405 is owned 100% by Musgrave Minerals Ltd.  At the time of writing the licence is granted for a 5 year period expiring on 4 February 2020.  There is no Native Title claim over the area covered by the tenement.
	<i>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</i>	The tenement application is in good standing and no known impediments exist.

<i>Exploration done by other parties</i>	<i>Acknowledgment and appraisal of exploration by other parties.</i>	<p>Historical drilling on this tenement has been limited to a small number of shallow aircore holes covering a 2 km<sup>2</sup> area in the north-east corner of the tenement completed by Ponton Minerals Pty Ltd.</p> <p>Ponton Minerals Pty Ltd contracted Bostech Drilling Pty Ltd to undertake 100m spaced aircore drilling on a number of gold target area in 2012. Gold sampling was undertaken using 3m composites for the entire drill hole. A multi-element sample (61 elements) was analysed as a 1-3m composite at the end of hole.</p> <p>Sample analysis was undertaken by Genalysis. The following assay procedure was undertaken: AR25/OES, AR25/MS and AR25/GF on 25g homogenized samples.</p> <p>Anomalous historical drill hole samples will need to be confirmed through resampling from existing drill spoils.</p> <p>Refer Combined Partial Surrender Report Ponton Project E28/1716, E28/1717, E28/1718, E28/1727 for the period 12th November 2007 to 8th November 2013. Combined Reporting Number: C196/2008 By: J. Sharp Ponton Minerals Pty Ltd 8th January 2014.</p>
<i>Geology</i>	<i>Deposit type, geological setting and style of mineralisation.</i>	Musgrave is exploring for multi commodity style deposits consistent with low MgO magmatic nickel-copper sulphide systems and Proterozoic gold mineralisation.
<i>Drill hole Information</i>	<i>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.</i>	No drilling has been undertaken by the owner or referred to in this report.
<i>Data aggregation methods</i>	<i>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.</i>	No drilling has been undertaken by the owner or referred to in this report.
<i>Relationship between mineralisation widths and intercept lengths</i>	<i>These relationships are particularly important in the reporting of Exploration Results.</i>	No significant mineralisation has yet been identified on the tenement
<i>Diagrams</i>	<i>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.</i>	Refer to figures in the body of this report.
<i>Balanced reporting</i>	<i>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.</i>	No drilling has been undertaken by the owner or referred to in this report.

<p><i>Other substantive exploration data</i></p>	<p><i>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.</i></p>	<p>A fixed wing aeromagnetic and radiometric survey was conducted over the entire tenement area of E28/2405 by Thomson Aviation. The survey comprises 2136 line km of data, with an E-W line orientation at 100m line spacing and nominal sensor height of 35-40m.</p> <p>The grid system used is GDA94 Z51</p> <p>Current high-powered fixed loop electromagnetic (HPFLEM) surveys are using variable loop configurations but nominally 1000 x 1000m or 1200x800m, 50m stations and 150m lines. An ORE HP transmitter producing &gt;150A is used. Base frequency for initial surveys – 0.5Hz, ZXY (Z+Up, X+East, Y+North), EMIT SMARTfluxgate B-Field sensor.</p>
<p><i>Further work</i></p>	<p><i>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></p>	<p>A range of exploration techniques are being considered to progress exploration including drilling.</p>
	<p><i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></p>	<p>Refer to figures in the body of this report.</p>

