ASX RELEASE

5 DECEMBER 2013

URQUHART POINT HEAVY MINERAL SAND RESOURCE UPDATE

KEY POINTS

- Urquhart Point Project Heavy Mineral Sand (HMS) Resources further upgraded and reported according to the JORC Code 2012.
- Indicated Resource tonnage increased by approximately 19% to 3.22 million tonnes (Mt) at 6.47% Heavy Minerals (HM) (previously 2.70 Mt at 6.53 HM% - see ASX Releases 15 October & 20 September 2013) at a cut-off grade (COG) of 2.0% - See Table 1.
- The resource is a high grade (averaging > 6%HM) HMS occurring from surface to an average depth of 2 m to 3 m.
- The HM consists of a variable suite of both valuable HM (VHM) assemblage (zircon, rutile and ilmenite) and also approximately half iron oxide sands.
- Additional information for this HMS Resource update was obtained from 83 drill holes totalling 283 m, completed in October 2013 (a total of 365 drill holes representing 709 m was used in this Mineral Resource estimate).
- Further drilling is planned in early 2014 to better define the VHM assemblage.

Metallica Minerals Ltd (ASX:MLM) (Metallica or "the Company"), is pleased to announce an increase of approximately 19% in the HMS Resource estimate for its Urquhart Point HMS Project (the Project) located on the western flank of Cape York in far north Queensland. The increase in the Mineral Resource estimate (approximately 500,000 tonnes) is as a result of a drilling program of a further 83 auger and aircore drill holes (totalling 283 m) which defined additional HM mineralisation. Previous drilling completed by Matilda Minerals Ltd resulted in (282 holes totalling 426 m).

The Urquhart Point Project (Exploration Permit for Minerals (EPM) 15268 & Mining Lease (ML) 20669 (situated entirely within the EPM), covers a large, low-lying sand mass located 3 km southwest of Weipa (Figure 1). The deposit is a coastal strandline and spit-style HMS deposit with very low slimes (clay) and a HM assemblage composed of zircon, rutile, ilmenite and iron oxides. The highest grade HM zones are located in the northern and eastern end of the deposit area (Figure 2).

The Mineral Resource is contained within the EPM and almost the entire ML, including approximately 42,560 tonnes of the resource located outside the north eastern edge of the ML (Figure 2). The ML covers an area of 366 hectares and has been granted for a 10 year term (to 31 October 2023) and is held 100% by wholly-owned Metallica subsidiary, Oresome Australia Pty Ltd (Oresome).

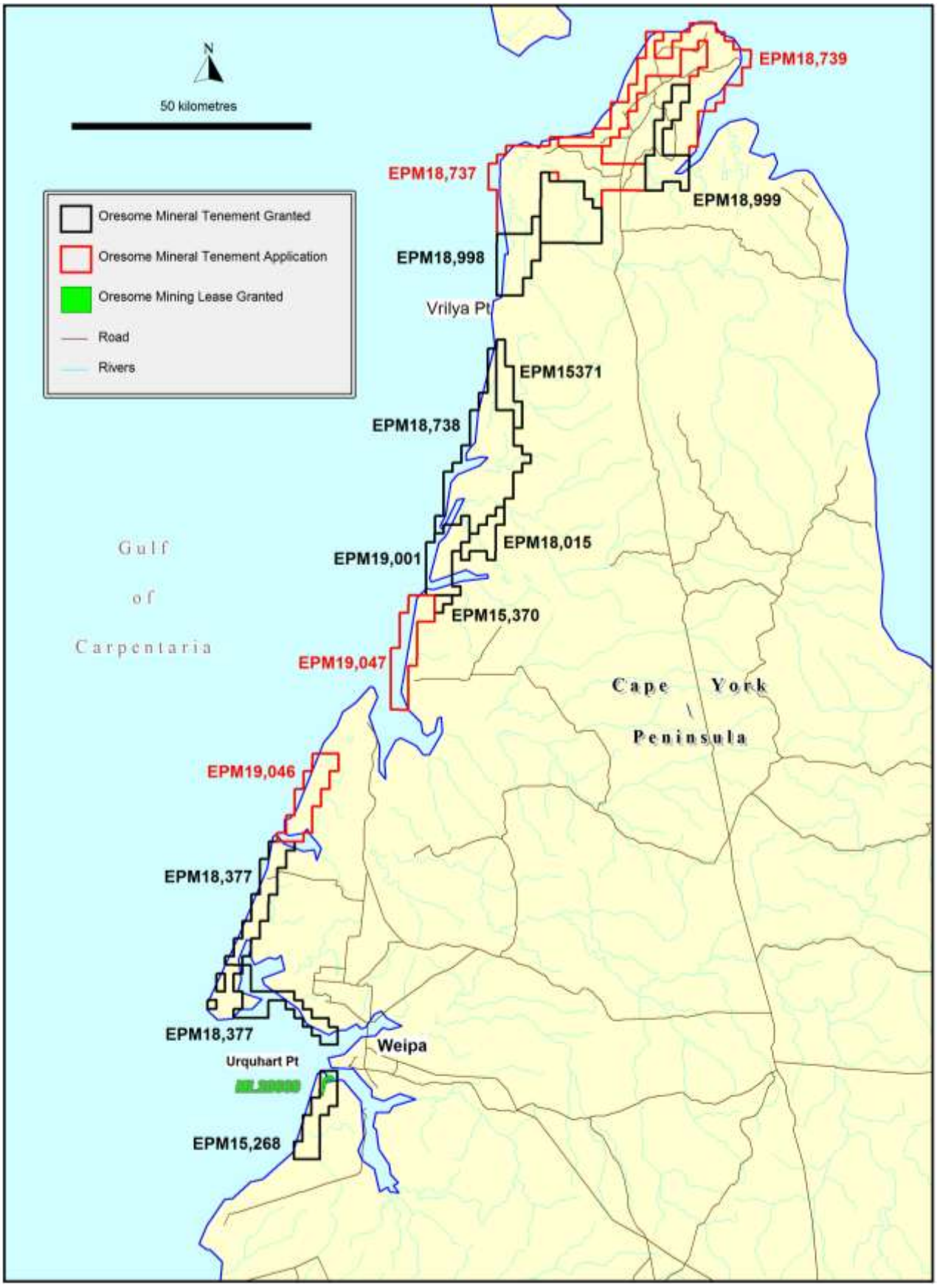

Figure 1: Urquhart Point Project near Weipa and regional tenure along western side of the Cape York Peninsular.

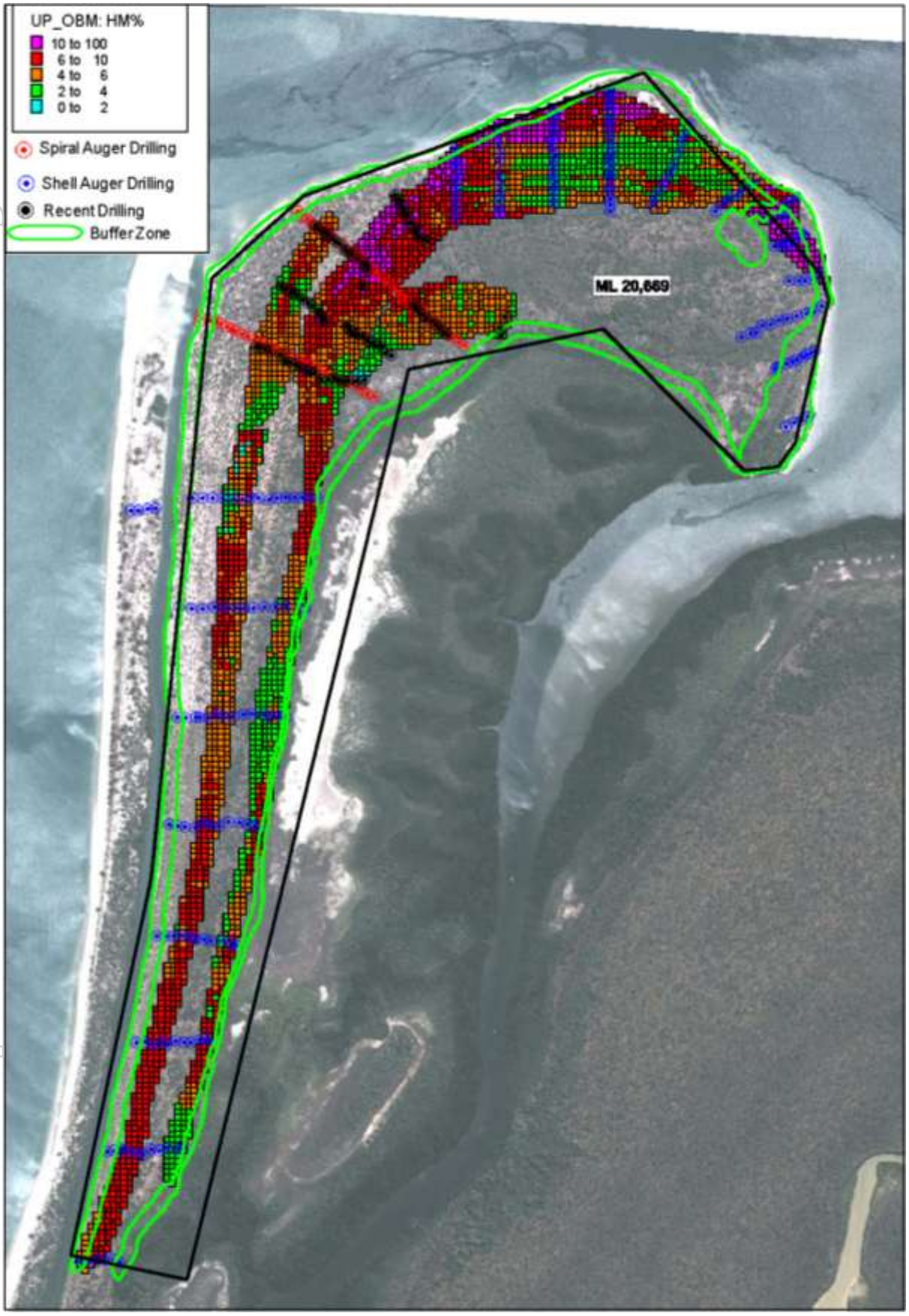

Figure 2: Global Block Model with all drilling colour coded by Drill Type. Resource block model colour coded by grade. The Green lines show buffer zones restriction to mining.

This latest drilling was completed over the central north portion of the deposit in an area where previously only shallow 1m deep spiral auger drilling had been completed. The drilling was successful by outlining additional mineralisation below and immediately outside the extent of the previously defined material and also provided a greater understanding of the likely mineral assemblage of the heavy minerals.

Metallica commissioned independent consultants, Coxsrocks Pty Limited, to update the previous resource using the additional drilling and to carry out and prepare a revised Mineral Resource estimate for Urquhart Point according to the guidelines of the JORC Code 2012. This upgraded Urquhart Point Mineral Sand Resource is classified as Indicated and is stated in Table 1 and in Table 2 using a range of COGs.

Table 1: Urquhart Point Mineral Resource using a 2% COG

INDICATED RESOURCE: November 2013				
Tonnes	**HM%**	**Oversize%**	**Slimes%**	**COG**
3,221,440	**6.47**	**11.18**	**1.18**	**2.0%**

Notes:

1. *The resource is entirely within EPM 15268 (does not allow for ML or potential environmental buffer boundary influences)*
2. *A small part of this resource (~42,560 tonnes at 23.8%HM) is situated outside the mining lease boundary and a separate mining lease application has been prepared to incorporate this portion.*
3. *The possible application of internal environmental buffer zones within the mining lease area has the potential to make portions of this resource unavailable for mining. Allowance for these proposed buffers will be required for the mine planning which is work in progress*.
4. *See attached Table 1 (JORC Code, 2012 Edition Section 1 Sampling Techniques and Data, Section 2 Reporting of Exploration Results and Section 3 Estimation and Reporting of Mineral Resources.*

Table 2: The Mineral Resource estimated using a range of HM% cut-off grades

Cut-off Grade HM%					
From	**Tonnes**	**Density**	**HM%**	**Oversize%**	**Slimes%**
10.0	**288,640**	**1.60**	**16.91**	**3.54**	**0.95**
8.0	**588,480**		**12.79**	**5.68**	**1.01**
6.0	**1,305,600**		**9.59**	**7.68**	**0.97**
5.0	**1,855,680**		**8.37**	**9.19**	**1.00**
4.0	**2,474,880**		**7.40**	**10.66**	**1.15**
3.0	**3,092,800**		**6.63**	**11.14**	**1.13**
2.0	**3,221,440**		**6.47**	**11.18**	**1.12**
0.0	**3,231,360**		**6.46**	**11.19**	**1.12**

The HM consists of a variable suite of targeted zircon, rutile and ilmenite minerals and approximately half iron oxides. The heavy minerals are located within a shallow mineral sand deposit on a base of partly cemented shelly limestone (coquina), with very low clay content.

The mineralised bodies have simple flat shapes, tight depositional control, good continuity and lack of cover or overburden should make the deposits visually definable and easy to mine cleanly. There is clear potential to high grade a number of areas should this be required, particularly in the northern zone.

Planning is underway for the development of a mining and treatment operation at Urquhart Point, designed to produce a high grade mixed heavy mineral concentrate.

The previous Mineral Resource estimation and latest revised estimate were completed by independent consultant, Simon Coxhell (Coxrocks Pty Limited). The geological modelling involved individual strandlines wire-framed together to form a series of solids and associated grades (HM%, slimes% and oversize%). The wireframe solids were interpolated to form a block model of the Mineral Resource. The block sizes adopted for the modelling were 20m by 20m by 0.5m thick. Any blocks lying outside the wireframes were trimmed off and the results reported (Figure 2).

HM Assemblage

The latest drilling and subsequent modelling work used to estimate this Mineral Resource has highlighted the requirement for additional mineral assemblage information from further drilling and possible bulk sampling, to better define the HM assemblage to be able to provide a breakdown of the proportion of zircon, rutile, ilmenite, iron oxide and other minor HM. This work is planned to be undertaken in early 2014.

Using the latest drilling information, the VHM assemblage can only be estimated within ranges until further drilling is completed. A review of the work to date suggests that the VHM% of the HM% is likely (based on averages) to be in the order of 50% and of this, it is estimated that 15% - 20% will be zircon, 10% - 15% will be rutile and the remainder ilmenite, assuming a COG of 2% HM. With an increase in the COG applied, the overall VHM% is generally expected to increase significantly.

Mineral Resource Influences (ML boundary & internal buffer zones)

The Mineral Resource is located entirely within exploration tenement EPM 15268.

A small portion of this Mineral Resource is located outside of the Mining Lease, including approximately 42,560 tonnes at 23.8% HM (using COG of 2% HM) and along the north-eastern edge of the ML (this portion is planned to be covered by a new separate Mining Lease Application (MLA) in the near future).

There are several internal environmental buffer zones which partlyy cover Mineral Resources located within the ML (Figure 2). The outcome of the effect of the buffer zones is that the Mineral Resource could be marginally reduced from the current Mineral Resource estimate of 3.22 Mt at 6.47% HM to 3.09 Mt at 6.25 % HM using the same COG of 2% HM.

Proposed Urquhart Point Development Planning

Metallica is planning to develop a simple dry mining (<3m depth) and wet processing procedure using standard gravity (using spirals) heavy mineral sand separation and concentration operation – no chemicals are required.

The planned HM bearing sand processing rate is proposed to be 200 to 300 tonnes per hour (or approximately 500,000 to 700,000 tonnes per year) to produce an HM concentrate over an expected 3 to 4 year mining and processing life.

Metallica is looking at the option of either producing a mixed HM concentrate (VHM and iron oxide sands) or a non-magnetic HM concentrate (i.e. predominately zircon and rutile) and is investigating options to most effectively reduce capital expenditure costs.

Regional HMS Potential

In addition to Urquhart Point, Oresome holds a further 2,000km² of prospective mineral sands tenements in the Western Cape York region, see figure 1.

On 26 November 2013, Metallica announced it had discovered significant new zircon rich HMS mineralisation on its regional exploration target called T16, located approximately 160 km north of Urquhart Point.

The Company completed 36 shallow holes, of which the great majority had visually significant zircon and titanium mineral sands in the panned samples. The laboratory analysis of these samples is expected to be received in the next couple of weeks. T16 was the first regional target to be tested and there are at least 10 other priority regional targets. Metallica is planning to resume exploration drilling activities in early 2014, subject to the outcomes of the Queensland Governments Cape York Regional Plan (CYRP) – for further information see ASX Release dated 26 November 2013.

Any early success and confidence towards further significant HMS projects regionally may influence the development planning for Urquhart Point.

For more information please contact:-

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The information in this report that relates to Resource Estimation is based on information compiled and reviewed by Mr Simon Coxhell. Mr Coxhell is a consultant to the Company and a member of the Australasian Institute of Mining and Metallurgy. Mr Coxhell has sufficient experience relevant to the styles of mineralisation and types of deposits which are covered in this document and to the activity which he is undertaking to qualify as Competent Person as defined in the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" ("JORC Code"). Mr Coxhell consents to the inclusion in this report/release of the matters based on this information in the form and context in which it appears.

The Technical information contained in this report has been compiled and/or supervised by Mr Andrew Gillies B.Sci (Geology) M.AusIMM (Managing Director of Metallica Minerals Ltd) who is a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy (M.AusIMM). Mr Gillies has relevant experience in the mineralisation, exploration results and targets being reported on to qualify as Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Gillies consents to the inclusion of this information in the form and context in which it appears in this release.

*See attached **Table 1**: JORC Code, 2012 Edition Section 1 Sampling Techniques and Data, Section 2 Reporting of Exploration Results and Section 3 Estimation and Reporting of Mineral Resources*

JORC Code, 2012 Edition – Table 1

Section 1 Sampling Techniques and Data: URQUART POINT

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (e.g. 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.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (e.g. '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 required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.*	• Samples of the Mineral Sand deposit were collected by systematic drilling and sampling methods on regular spaced sections orientated at right angles to the strike of the deposit. • All samples were cone and quartered as appropriate for mineral sands sampling with approximately 1 kg/sample/metre (m) collected. • 1:30 separate field splits taken and analysed to ensure representative sampling techniques, correlation coefficients of >95% for all samples. • Approximately 1 kilogram of homogenized sample was collected per metre drilled. • Duplicate analysis confirmed the veracity of the sampling. • One metre length samples were collected from the sampling and effectively quartered to provide representative samples weighing approximately 1 kilogram each.
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole 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).*	• Shell auger and aircore sampling (~50/50) with a 100 mm diameter shell bit. • Spiral auger sampling with a 75 mm diameter bit. • 83 aircore and auger holes representing a total of 283 m.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.*	• 100% recovery for the shell auger sampling. • 90% for the spiral auger sampling. • Careful sampling techniques ensured comprehensive and

Criteria	JORC Code explanation	Commentary
	• *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.*	representative sample was collected. • No relationship between sample recovery and grade exists.
Logging	• *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.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged*	• All samples were systematically logged recording colour, grainsize, hardness, sphericity, composition and estimated HM%. • This is appropriate for an Indicated Mineral Resource estimate. • All intervals geologically logged. • Logging is a combination of qualitative and quantitative data being collected and considered.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *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.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Samples were cone and quartered with comprehensive mixing in between all stages of sampling. Duplicate analysis confirmed the reliability of the sampling. • Sample sizes were appropriate for the medium grade nature of the particular sample and grade.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *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*	• Assaying was carried out by Western Geolabs Pty Ltd in Perth and Robbins Metallurgical Labs in Brisbane, using the following procedure: • Dry for 5 - 8 hours: Disaggregate by hand; • Split off approximately 120g via a riffle splitter; • Deslime 120g split through 63um screen (minus 63um fraction is “%slimes”);

Criteria	JORC Code explanation	Commentary
	derivation, etc. • *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.*	• Dry and weigh the +63um fraction; • Split off and weigh the +1.00mm fraction ("%oversize"); • Stir the +1.00mm to 63um fraction into TBE liquid in separation funnels. • Sinks are drained, washed, dried and weighed to give "%HM".
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• A number of programs of drilling and sampling have been completed by different companies and individuals. • No significant differences were apparent, therefore twinned holes not warranted. • Data faxed to Maxwell Data Services where it was entered into a validated Access Databases and updated by specialist data consultants for the latest aircore drilling.
Location of data points	• *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.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• GPS survey (+/- 5 m accuracy) is appropriate for Indicated Resource estimates (WGS 84), MGA 94: Zone 54). • Grid: MGA 94, Zone 54, RLs approx. +/- 2 m AHD
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *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.* • *Whether sample compositing has been applied.*	• Section spacing: 100 - 200 m along strike, holes 20 - 30 m across strike, considered to be appropriate for the strand style of the Urquhart Point Mineral Sand Deposit. • No composite samples, all samples 1 m.
Orientation of data in relation to geological	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation*	• Sampling conducted with vertical drill holes on section lines, orientated at right angles to the strike of the deposit.

Criteria	JORC Code explanation	Commentary
structure	*of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• Not Applicable
Sample security	• *The measures taken to ensure sample security.*	• Samples were dispatched via courier service between site and Perth and Brisbane. • Visual estimates matched/compared to lab results to confirm grades.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No formal audits have been conducted, but discussion between all interested parties has confirmed the drilling and analytical techniques used.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *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.* • *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.*	• Oresome Australia Pty Ltd (a 100% owned subsidiary of Metallica Minerals Limited) is the registered tenement holder of ML20669, located near Weipa in north Queensland. • Environmental Impact Assessments have been completed and approval to commence mining has been given. Buffer Zones may reduce the Mineral Resource by approximately 10 to15%. • No Impediment, Mining Licence Granted.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Exploration has been conducted since the early 1960s. A large proportion of the previous work was conducted by Matilda Minerals between 2006 and 2008.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The deposit is a low slime, strand-style of deposit with heavy minerals comprised of zircon, rutile, ilmenite and iron oxide sands. The spit-style deposit consists of a series of strandlines parallel to the coast and inshore areas of Albatross Bay. The highest grade zones are located on the northern end of the deposit area and recent reworking

Criteria	JORC Code explanation	Commentary
		by storms and currents have resulted in accumulations of heavy minerals on the active beach and extending inland at Urquhart Point.

Drill hole Information	• *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:*
	  ○ *easting and northing of the drill hole collar*
	  ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*
	  ○ *dip and azimuth of the hole*
	  ○ *down hole length and interception depth*
	  ○ *hole length.*
	• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*
		• All drill hole information resides on the Urquhart database and tabulated accordingly.

Data aggregation methods	• *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.* • *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.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• No top cut adopted as is typical with a mineral sand homogenous style of deposit. • No aggregate intercepts required for a homogeneous mineral sand deposit. • Not applicable for a mineral sand deposit.
Relationship between mineralisation	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.*	• The deposit is a flat lying sand deposit averaging approximately 2.5 m in thickness and extending over approximately 200 hectares. • Very shallow vertical Holes are drilled on regular sections throughout the deposit.

Criteria	JORC Code explanation	Commentary
widths and intercept lengths	• *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').*	• Down hole lengths of only approximately 3m represent true thickness intersections.
Diagrams	• *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.*	• All required diagrams are presented in the Mineral Resource estimate report submitted to Metallica Minerals.
Balanced reporting	• *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.*	• Comprehensive reporting of all Exploration Results was practicable.
Other substantive exploration data	• *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.*	• Bulk samples collected for metallurgical test work has returned similar results to that obtained by the exploration and Resource development drilling.
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Further planned work will result in infill drilling in areas where previous drilling did not define the base of the mineralized zones. • These diagrams have been presented to Metallica Minerals for consideration. An additional drilling program is planned for early 2014.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• Data was managed by an external database management company which then provided Microsoft Access export files available for use in Micromine Mining Software. Original analytical results electronically merged with the sample number. Data was verified with sections/plans/database queries.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• A total of 3 site visits were undertaken by the Competent Person.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• Confidence in the simple geometry of the Mineral Resource is considered to be very good. • The Mineral Resource is classified as an Indicated Resource,, commensurate with the work completed to date. • The deposit is consistent and little alternatives are present in the current geological understanding. • Drill logs/sections were coded by geological characteristics to ensure an accurate fit and interpretation.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• The deposit occurs over a broadly orientated north–south direction for an approximate 5 kilometre strike length. The width of the deposit is variable and ranges from 30 - 400 m. Thickness varies between 1 - 3.5 m.
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.*	• Individual wireframes for different portions/orientations of the deposit was adopted. • Search ellipses were 2X the section spacing and 2X the hole spacing, with a 1 m search in the Z direction. • Previous Mineral Resource estimates have been made and compare

Criteria	JORC Code explanation	Commentary
	• *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	closely to this latest estimate. • No assumptions have been made for recovery of by-products. • No deleterious elements inside the project area have been identified. • Block Sizes adopted for the modelling were 20 m X 20 m X 0.5 m (X, Y and Z dimensions). • Search Ellipses were orientated parallel to the strike of the deposits. Inverse Distance Squared interpolation methods were used. • Homogenous mineral sand deposits may be estimated without a top cut. The correlation between duplicate sample splits and twinned holes suggest no nugget effect to the sampling. • Only sand as logged formed the wireframes. • Validation was carried out by comparison with Wireframe average grades verses interpolated OBM values.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Dry basis.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• Not Applicable.
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions*	• Simple shallow (<3m) mineral sand mining operation with excavator and truck/Loader is envisaged. Dilution not a major issue from experience in mining similar style deposits.

Criteria	JORC Code explanation	Commentary
	made.	
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	• The deposit type is very similar to the Matilda Mineral Tiwi Island mineral sand project where recoveries of 90% were readily achieved using a conventional screening and spiral processing operation to produce a zircon/rutile premium product.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• Tailings will be pumped back into the mined pit. • Buffer Zones have been identified (Figure 2) following the Environmental Impact Assessment (EIA) and these do contain Mineral Resources in places. However, it is believed at this time that a significant portion of these Resources effected are more likely than not to have reasonable prospects for eventual economic extraction and on this basis have been declared as Mineral Resources. • EIA completed and approvals received.
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• An In-Situ Bulk Density (ISBD) was estimated using previous experience and empirical measurements from similar projects. A cubic metre to tonnage conversion factor of 1.6 tonnes per cubic metre (t/bcm) was adopted. • The adopted bulk density takes into account the porosity of the sand. • 1.6 t/bcm is an accepted industry standard for mineral sands deposits such as Urquhart Point.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors*	• The classification is based on drill hole density, GPS surveying measurements and limited modal analysis. • Closer spaced drilling, DGPS survey control and additional modal

Criteria	JORC Code explanation	Commentary
	(i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	analysis, ISBD work, will result in the Indicated Resource being upgraded to Measured. • The Mineral Resource estimate appropriately reflects the view of the Competent Person.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• This 2013 Mineral Resource estimate compares favourably with the 2008 estimate by Roger Hobbs and completed on behalf of Matilda Minerals.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• The relative accuracy of the mineral resource estimate is reflected in the reporting of their MINERAL Resource as per the guidelines of the 2012 JORC code. • The statement relates to global estimates of tonnes and grade. • No production data available.