

# ASX ANNOUNCEMENT

20 September 2021

## Galalar Silica Resource Expands by 22% to 75.5 Mt

- Total Mineral Resource for Diatreme's Galalar Silica Project, North Queensland, increases by 22% to 75.5 Mt in a further boost to the emerging premium quality silica mine
- Clean, high-purity in-situ SiO<sub>2</sub> grade continues with an average of 99.16%
- This significant increase in the Mineral Resource with a cut-off grade of 98.5% SiO<sub>2</sub>, demonstrates the continuity of the world-class, high-grade silica product and the potential for long-term operation

Emerging silica sand developer and explorer, Diatreme Resources Limited (ASX: **DRX**, or the **Company**) is pleased to announce a further significant increase in the total JORC Mineral Resource estimate for its Galalar Silica Project (GSP) in North Queensland. The 22% increase from 61.9 Mt ([ASX release 17 March 2021](#)) to 75.5 Mt highlights the continuity of the project's world-class, high-purity silica resource.

The resource update is based on exploration and drilling campaigns up until September 2021, and was prepared by independent consultants Ausrocks Pty Ltd. The JORC Mineral Resource estimate is summarised in **Table 1**, which has risen to 75.5 million tonnes (Mt), up about 22% on the previous estimate announced in March 2021. The total resource covers an area of approximately 486 ha (up from 335 ha) with an average thickness of 15.5 m, which comprises 92.9% of the Mining Lease Application (MLA) 100235 (523 ha).

Diatreme's CEO, Neil McIntyre commented: "We are delighted by the further expansion of our flagship Galalar Project which is strategically positioned as a key and environmentally sustainable supplier of premium-quality silica to Asia's fast growing solar PV industry, amid growing supply concerns.

"Galalar has the potential to be a long-term silica operation that generates valuable new jobs and investment for the local communities of Hope Vale and Cooktown, and together with its potential for downstream processing opportunities in Townsville has the potential to give the whole region a boost in its post-pandemic recovery."

**AUSTRALIAN SANDS. UNIVERSAL DEMAND.**

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**Table 1: Resource Estimate, September 2021\***

| JORC Resource Category | Silica sand (Mt) | Silica sand (Mm <sup>3</sup> ) | Cut-off SiO <sub>2</sub> (%) | SiO <sub>2</sub> % | Fe <sub>2</sub> O <sub>3</sub> % | TiO <sub>2</sub> % | LOI %       | Al <sub>2</sub> O <sub>3</sub> % | Density (t/m <sup>3</sup> ) |
|------------------------|------------------|--------------------------------|------------------------------|--------------------|----------------------------------|--------------------|-------------|----------------------------------|-----------------------------|
| Measured               | 43.12            | 26.95                          | 98.5                         | 99.21              | 0.09                             | 0.11               | 0.16        | 0.13                             | 1.60                        |
| Indicated              | 23.12            | 14.45                          | 98.5                         | 99.16              | 0.09                             | 0.13               | 0.24        | 0.10                             | 1.60                        |
| Inferred               | 9.22             | 5.76                           | 98.5                         | 99.10              | 0.11                             | 0.16               | 0.27        | 0.11                             | 1.60                        |
| <b>Total**</b>         | <b>75.46</b>     | <b>47.16</b>                   | <b>98.5</b>                  | <b>99.18</b>       | <b>0.09</b>                      | <b>0.12</b>        | <b>0.20</b> | <b>0.12</b>                      | <b>1.60</b>                 |

\* Resource Estimate current as of 13 September 2021

\*\* Total inferred, indicated and measured

The Company also continues to progress its low-impact exploration program near Cape Flattery within Exploration Permit for Minerals 17795, focussing on priority targets Silica Target 1 (Si1) and Silica Target 2 (Si2) ([ASX release 18 August 2021](#)). Consultations with the Traditional Owners to avoid and minimise environmental and cultural heritage impacts are ongoing. It is anticipated the results from Si1 and Si2 will add to the Company's growing silica resource inventory.

The Company is advancing the regulatory approval process, Preliminary Feasibility Study (due in the coming weeks) and Definitive Feasibility Study to ensure the project plays a role in the region's recovery from the impact of COVID-19. The draft EIS is now being finalised with a target of receiving the necessary environmental approvals and grant of MLA 100235 in the first quarter of CY 2022 and potential first production in late 2022.

Recent investor support, as seen in the successful \$10 million Placement ([ASX release 14 September 2021](#)), has further demonstrated investor confidence in the future of the Galalar project and its potential to deliver increased shareholder value.

This announcement was authorised for release by the Board.

**Neil McIntyre**  
Chief Executive Officer

**Greg Starr**  
Chairman

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### **About Diatreme Resources**

Diatreme Resources (ASX:DRX) is an emerging Australian producer of mineral and silica sands based in Brisbane. Our key projects comprise the Galalar Silica Project in Far North Queensland, located next to the world's biggest silica sand mine, together with the Cyclone Zircon Project in Western Australia's Eucla Basin, considered one of a handful of major zircon-rich discoveries of the past decade.

For more information, please visit: [www.diatreme.com.au](http://www.diatreme.com.au)

### **References to previous ASX releases:**

- Completion of Placement – 14 September 2021
- Northern exploration targets resource expansion – 18 August 2021
- Galalar silica resource expands 30% to 61.9Mt – 17 March 2021



## AUSROCKS PTY LTD – EXCERPTS FROM EXECUTIVE SUMMARY REPORT

### Project Outline

The project is located adjacent to the coastline approximately 20 km north of Cooktown, within the very southern part of Exploration Permit for Minerals (EPM) 17795. Diatreme Resources Limited (Diatreme) was granted Exploration Permit for Minerals (EPM) on 22 June 2016 for a period of five years, targeting high grade silica sand and potential heavy minerals. The Galalar Silica Project has now advanced to the stage whereby a Mining Lease Application (MLA) 100235 was lodged on 23 December 2019, covering 523 ha and the vast majority of the project.

A second infrastructure MLA 100285 was lodged on 10 June 2021 over 29.88 ha which provides access to the proposed Barge Loading Facility at Nob Point. Additionally, two further neighbouring EPMs related to the project have been acquired by Diatreme, EPM 27265 (granted 30 January 2020), and application EPMA 27430 which covers the proposed barge loading area.

In addition to the Galalar Silica Project, Diatreme has also identified a number of significant silica sand Exploration Target Areas, including several in close proximity to the Galalar Silica Sand Project, and also, a number throughout the wider EPM 17795 (ASX announcement 18 August 2021).

### Exploration

Ten exploration and drilling campaigns have been undertaken onsite between September 2017 and September 2021 of which 191 drillholes and 24 hand-auger holes were used to define Measured, Indicated and Inferred Mineral Resources in accordance with the JORC Code (2012), located within the Galalar area.

These holes include infill holes in the previously defined Resource Area and exploration holes in Galalar Extended.

### Geology

The Galalar Silica Project's Galalar Deposit is located at the southern end of the Cape Flattery/Cape Bedford dune field complex. The Cape Flattery/Cape Bedford dune field fringes the coastline as a part of a large Quaternary (Pleistocene to Holocene) age silica sand mass, extending along the coastline for approximately 50 km and up to 10 km inland, and average 25-30 m in thickness, with some dunes extending over 90 m high in elevation.

The target dunes are bound to the east by Deep Creek and the west by Alligator Creek which run parallel. Alligator Creek appears to have bisected the Galalar Dune system to the west to form a smaller domed shaped dune known as Galalar West. The main dune system (Galalar Main) occupies the western half of the area between the creeks and contains the significant quantity of the sand within the resource. The dune system is up to 38 m thick along the axis of the dune system and does contain areas of incrementally higher iron/clay sand on paleo-dune surfaces, particularly at the southern end.



The eastern half of the Galalar area (Galalar East) is significantly lower in elevation and the surface area is dominated by younger and later sand dunes.

Within the Galalar Dune System, there are some relative subdivisions based on location, dune size and topography. This includes:

- Galalar West
- Galalar Main
- Galalar East
- Galalar North\*

\* Galalar North extends outside the northern Mining Lease boundary to an extensive area known as Galalar Extended.

The deposit is dominated by clean high purity >98.5% silica (quartz) which is principally white, cream and light grey in colour, but also with variably dispersed yellow, orange and brown overtones. Sand colouration is from surface coating on sand grains of Iron (Fe) rich clay material including  $\text{Fe}_2\text{O}_3$ . It only takes a trace percentage of  $\text{Fe}_2\text{O}_3$  to colour the sand, with cream and orange-coloured sands being in excess of 98.5%  $\text{SiO}_2$ .

### **Cut-Off Grade**

The  $\text{SiO}_2$  content by percentage was used to quantify in-situ material as a resource due to the final marketable product being a high  $\text{SiO}_2$  grade sand. Cut-off grades were adopted based on analysis of raw assay data and grade tonnage plots. The following cut-off grades were used for three resource reporting levels:

- Measured Mineral Resource –  $\text{SiO}_2$  cut-off grade of 98.5%
- Indicated Mineral Resource –  $\text{SiO}_2$  cut-off grade of 98.5%
- Inferred Mineral Resource –  $\text{SiO}_2$  cut-off grade of 98.5%

From the 215 exploration holes that were used in the Mineral Resource Estimate the % $\text{SiO}_2$  ranged from 96.05%-99.99% (excluding the bottom of the hole which was contaminated with clays/indurated material).

### **Resource Estimate**

Micromine 2021 was used to model and evaluate the resource. The block model was defined by the top of the resource (0.3 m below the surface topography to exclude the topsoil layer), the base of the resource (base of the drillholes) and the interpreted geological boundaries. The block model was subject statistical and geostatistical analysis and the Ordinary Kriging (OK) method was used to populate the blocks. The Inverse Distance Weighting (IDW) method was used to check the model and yielded similar results. Swath plots were used to validate the interpolation technique to ensure accuracy.

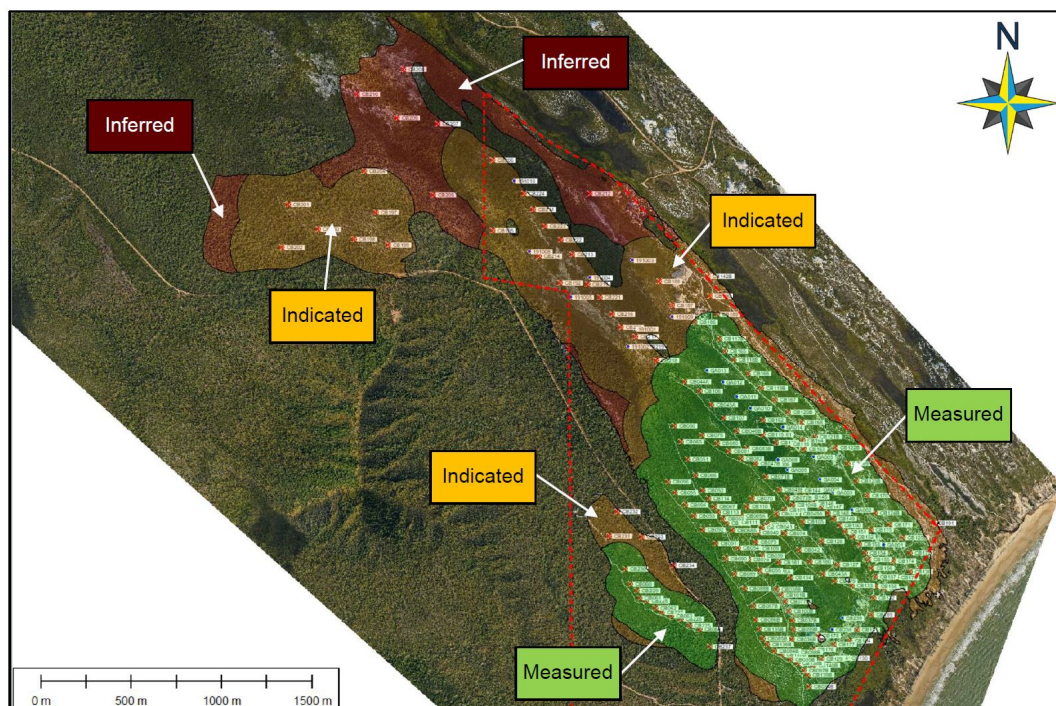
Parent blocks were sized at 10 mE x 10 mN x 1 mRL. Sub-blocks were sized at 1 mE x 1 mN x 1 mRL.

In addition to modelling  $\text{SiO}_2$  data in the block model,  $\text{Fe}_2\text{O}_3$ ,  $\text{TiO}_2$ , LOI and  $\text{Al}_2\text{O}_3$  were also block modelled with other assayed elements not modelled due to low values at or near the detectable limits. Seventy-eight (78) bulk density measurements have been undertaken on site using a Dormer Push Tube. Based on the average of these measurements, a material density of 1.6 t/m<sup>3</sup> was used for the Mineral Resource Estimate.

Drill spacing and interpreted geological continuity has allowed three resource categories to be defined which have been estimated in accordance with the JORC Code (2012) and are defined as follows:

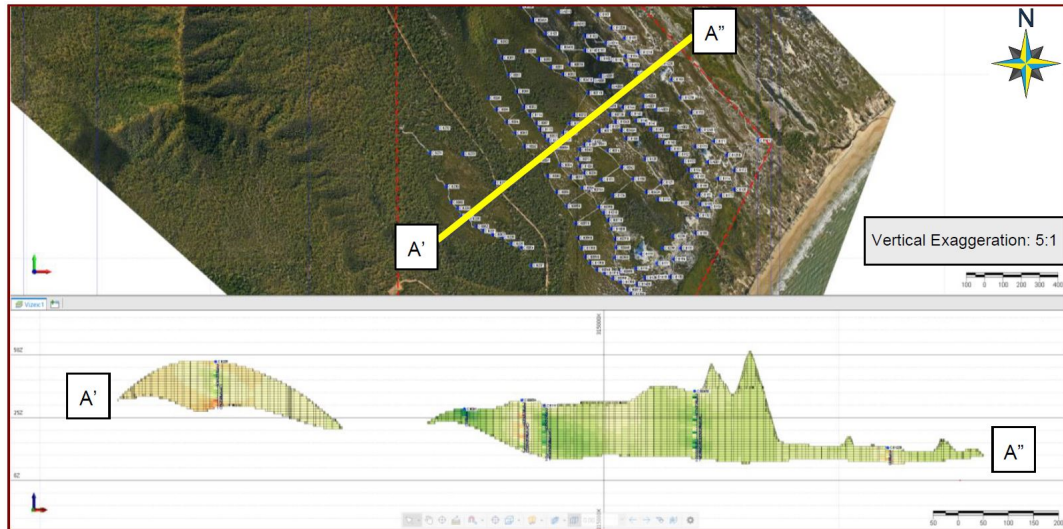
- Measured Mineral Resource: Area with drillholes completed at semi-gridded spacing <150 x 150 m ending in basement/water table
- Indicated Mineral Resource: Area with drillholes at a confirmatory level spacing (150-250 m) ending in basement/water table
- Inferred Mineral Resource: Areas with drillholes at a scout level spacing (250-400 m)

**Figures** (from report)

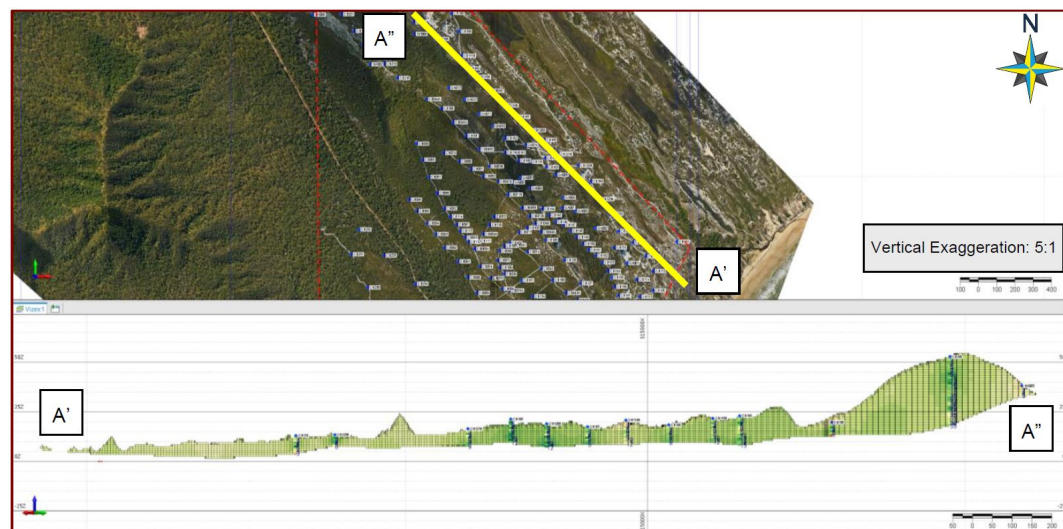


Resource Boundary and Drillholes Used for the Measured, Indicated and Inferred Mineral Resource Estimation






Cross Section (West to East) through Block Model



Long Section (North to South) through Block Model

## Conclusion

The Galalar Silica Sand Project Deposit has been well defined by drilling and the geological controls are reasonably well understood. The Galalar Deposit contains white, high purity silica sands ( $\text{SiO}_2$  average: 99.18%) and low iron ( $\text{Fe}_2\text{O}_3$  average: 0.09%). The dunes within the Galalar Deposit average 15.5 m in overall thickness. Additional



drilling within the Resource Area is not anticipated to significantly add to the resource size but will improve/increase the resource category.

The known nature and formation of the dune sands, together with consistent high silica grades achieved in drillholes, places a high degree of confidence in the geological interpretation. Continuity of geology (chip tray photographs) and grade (assays) can be readily identified and traced between all drillholes. The interpreted geology of the Galalar Deposit is robust, and any alternative interpretation of the deposit is considered unlikely to have a significant influence on the total Mineral Resource Estimate undertaken.

With appropriate consideration of mining, processing, metallurgical, infrastructure, economic, marketing, legal, environment, social and government factors or any other modifying factors, a proportion of this Mineral Resource Estimate could be considered for upgrading to Ore Reserve status, according to JORC Code (2012) Guidelines.

The outcome of this Mineral Resource Estimate is summarised as follows:

- Total Measured, Indicated and Inferred Mineral Resource Estimate of 75.46 Mt at 99.18% SiO<sub>2</sub>, which represents a 22% increase on the previous Mineral Resource of 61.9 Mt
- Measured Mineral Resource Estimate of 43.12 Mt at 99.21% SiO<sub>2</sub>, which represents 57.1% of the total (75.46 Mt) Mineral Resource that has been identified
- Indicated Mineral Resource Estimate of 23.12 Mt at 99.16% SiO<sub>2</sub>, which represents 30.6% of the total (75.46 Mt) Mineral Resource that has been identified
- Inferred Mineral Resource Estimate of 9.22 Mt at 99.10% SiO<sub>2</sub>, which represents 12.2% of the total (75.46 Mt) Mineral Resource that has been identified

*[END OF EXECUTIVE SUMMARY EXCERPT]*





## **MINERAL SANDS AND SILICA – COMPETENT PERSON STATEMENTS**

The information in this report that relates to the Mineral Resources at the Galalar Silica Project is based on information and modelling carried out by Dale Brown, Mining Engineer and Chris Ainslie, Geotechnical Engineer who are employed by Ausrocks Pty Ltd and are Members of the Australasian Institute of Mining and Metallurgy (AusIMM). The work was supervised by Mr Carl Morandy, Mining Engineer who is Managing Director of Ausrocks Pty Ltd and a Member of AusIMM, and by Mr Brice Mutton who is a Senior Associate Geologist for Ausrocks Pty Ltd.

Mr Mutton is a Fellow of AusIMM and a Fellow of the Australian Institute of Geoscientists (AIG). Mr Brown, Mr Morandy, Mr Ainslie and Mr Mutton are employed by Ausrocks Pty Ltd who have been engaged by Diatreme Resources Limited to prepare this independent report. This is no conflict of interest between the parties. Mr Brown, Mr Morandy, Mr Ainslie and Mr Mutton consent to the disclosure of information in the form and context in which it appears in this announcement.

Mr Mutton has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity for 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' (JORC Code).

Mr Mutton consents to the inclusion in the report on the matters based on their information in the form and context in which it appears.

The information in this report that relates to Exploration Results and Exploration Targets from the Galalar Silica Project is based on information reviewed and compiled by Mr Neil Mackenzie-Forbes, a Competent Person who is a Member of AIG. Mr Mackenzie-Forbes is a Director of Sebrof Projects Pty Ltd (a consultant geologist to Diatreme Resources Limited).

Mr Mackenzie-Forbes 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 in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Mackenzie-Forbes consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

**JORC CODE, 2012 EDITION – TABLE 1 REPORT**  
**GALALAR SILICA PROJECT: MEASURED, INDICATED & INFERRED**  
**UPGRADED MINERAL RESOURCE ESTIMATE (SEPTEMBER 2021)**

**SECTION 1 SAMPLING TECHNIQUES AND DATA**

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

| Criteria                   | JORC Code explanation  | Commentary  |
|----------------------------|--|---|
| <b>Sampling techniques</b> | <ul style="list-style-type: none"> <li><i>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.</i></li> <li><i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i></li> <li><i>Aspects of the determination of mineralisation that are Material to the Public Report.</i></li> <li><i>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.</i></li> </ul> | <ul style="list-style-type: none"> <li>One (1) metre samples were collected from hand-auger, air-core and vacuum drilling programs. A number (35 holes) of early staged air-core holes were drilled at three (3) metre intervals and several within the resource have been “twinned” and sample on 1m intervals to confirm normalisation to one (1) metre intervals is appropriate. All material intervals were sampled.</li> <li>Hand-auger holes were sampled in 1m intervals with 1-2kg (~50% of drill material returned via the auger) collected and bagged. Carew was taken to remove possible contamination from the Shell Auger.</li> <li>The air-core drill collected cuttings from a cyclone mounted rotary splitter with approximately 3-4kg (~20% of drill material returned via the cyclone) samples collected and bagged. Sample chute was cleaned between samples and regular cleaning of cyclone to prevent sample contamination.</li> <li>The vacuum drill collected cuttings from a return cannister with 2-3kg (100% of drill material returned by the vacuum drill rig) samples collected and bagged (calico sample bags). Subsamples of approx. 500g to 1kg were speared and separately numbered, bagged and sealed ready for assaying as drilling progressed.</li> <li>Where bulk samples are collected, 100% of sample from cyclone is collected and a ‘spear’ sample is collected for geochemical analysis.</li> <li>Samples were submitted to ALS Laboratories (Brisbane) for drying, splitting (if required), pulverization in tungsten carbide bowl, and XRF (XRay Diffraction) analysis.</li> <li>Sampling techniques are mineral sands “industry standard” for dry</li> </ul> |

|                              |   |   |
|------------------------------|---|---|
|                              |   | <p>beach sands (silica/SiO<sub>2</sub>) and for low levels of impurities.</p> <ul style="list-style-type: none"> <li>• As the targeted mineralisation is silica sand (quartz/SiO<sub>2</sub>), geological logging of the drill material is a primary method for identifying mineralization.</li> <li>• Metallurgical samples are composited intervals of white and cream sands logged in drilling with collection of the entire volume of air-core drill cuttings from the cyclone/hand-auger samples into large bulk samples bags.</li> </ul>  |
| <b>Drilling techniques</b>   | <ul style="list-style-type: none"> <li>• <i>Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., 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.).</i></li> </ul>  | <ul style="list-style-type: none"> <li>• Three (3) drilling techniques were used. Namely hand-auger, air-core and vacuum. All holes were drilled vertically.</li> <li>• One hundred and ninety-one (191) drillholes (air-core and vacuum) were used for the Mineral Resource Estimate. The average depth is 15m.</li> <li>• Twenty-four (24) hand-auger holes (55mm diameter), drilled to an average depth of 3.9m, were used for the Mineral Resource Estimate. One auger-hole was extended to 7m depth.</li> <li>• Air-core drilling (NQ size) was by Diatreme's owned 4x4 truck mounted drill rig using a blade bit with 3m runs sampling every metre.</li> <li>• Vacuum drilling was by a 4x4 tractor mounted drill rig with a blade drill bit diameter of 60mm equivalent to NQ sample size, using 1.8m rods.</li> <li>• Holes were terminated in a basement layer (clay/coloured sands) or when the very damp sand or water was intersected.</li> </ul> |
| <b>Drill sample recovery</b> | <ul style="list-style-type: none"> <li>• <i>Method of recording and assessing core and chip sample recoveries and results assessed.</i></li> <li>• <i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i></li> <li>• <i>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.</i></li> </ul> | <ul style="list-style-type: none"> <li>• Air-core and vacuum drilling achieved 100% sample recovery throughout.</li> <li>• Some hand-auger holes experienced partial hole collapse in the first meter in dry conditions but measures were taken to ensure representative sampling.</li> <li>• No sample bias occurred between sample recovery and grade.</li> <li>• Air core was able to penetrate up to 5m into damp clay basement or wet sands before termination. Vacuum drilling terminated immediately when damp clay basement or wet sands were intersected.</li> </ul>   |
| <b>Logging</b>               | <ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</i></li> </ul>  | <ul style="list-style-type: none"> <li>• Geological logging of the total hole by field geologist was completed onsite, with retention of sample in chip trays to provide a visual sample record, photography and to allow subsequent re-interpretation of data if required.</li> <li>• Every 1m sample interval was geologically logged. Logging includes</li> </ul>  |

|   |   |   |
|---|---|---|
|   | <ul style="list-style-type: none"> <li><i>The total length and percentage of the relevant intersections logged.</i></li> </ul>  | <p>qualitative descriptions of colour, grain size, sorting, induration and estimates of heavy minerals, slimes and oversize utilising panning.</p> <ul style="list-style-type: none"> <li>Logging has been captured through field drill log sheets and transferred via excel spreadsheets with daily update of field database and regular update of master database.</li> </ul>   |
| <b>Sub-sampling techniques and sample preparation</b> | <ul style="list-style-type: none"> <li><i>If core, whether cut or sawn and whether quarter, half or all core taken.</i></li> <li><i>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</i></li> <li><i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i></li> <li><i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i></li> <li><i>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.</i></li> <li><i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i></li> </ul> | <ul style="list-style-type: none"> <li>Hand-auger holes were sampled in 1m intervals with 1-2kg (~50% of drill material returned via the auger) collected and bagged.</li> <li>The air-core drill collected cuttings from a cyclone mounted rotary splitter with approximately 3-4kg (~20% of drill material returned via the cyclone) samples collected and bagged.</li> <li>The vacuum drill collected cuttings from a return cannister with 2-3kg (100% of drill material returned by the vacuum drill rig) samples collected and bagged (calico sample bags). Subsamples of approximately 500g to 1kg were speared and separately numbered, bagged and sealed ready for assaying as drilling progressed.</li> <li>Sample size (500g - 3kg) is considered appropriate for the grain size of material. Average grain size is 87% material by weight between 0.125mm and 0.5mm.</li> </ul>   |
| <b>Quality of assay data and laboratory tests</b>     | <ul style="list-style-type: none"> <li><i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></li> <li><i>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.</i></li> <li><i>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.</i></li> </ul>  | <ul style="list-style-type: none"> <li>All assaying has been carried out by ALS Mineral Laboratories, Brisbane. ALS is a global leader with over 71 laboratories worldwide providing laboratory testing, inspection certification and verification solutions. ALS Quality Assurance and all ALS geochemical hub laboratories are accredited to ISO/IEC 17025:2017 for specific analyses, which includes their Townsville and Brisbane laboratories. ALS is NATA Accredited, Corporate Accreditation No. 825, Corporate Site No. 818.</li> <li>XRF was chosen as the most cost-effective assaying method for silica for all exploration samples.</li> <li>There is an alternative ICP method which has lower detection limits for the other oxides such as Fe<sub>2</sub>O<sub>3</sub> and Al<sub>2</sub>O<sub>3</sub>, but the SiO<sub>2</sub> assay is determined by calculation and not a measured quantum.</li> <li>Assay methods employed are designated ME-XRF26 (whole rock by Fusion/XRF) and ME-GRA05 (H<sub>2</sub>O/LOI by TGA furnace).</li> <li>In 2021 LOI analysis was changed to ME-GRA05x method.</li> <li>Assaying was primarily to determine the silica (SiO<sub>2</sub>%) percentage, but as part of the method results were obtained for a range of elemental oxides, namely Al<sub>2</sub>O<sub>3</sub>, BaO, CaO, Cr<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, K<sub>2</sub>O, MgO, MnO, Na<sub>2</sub>O, P<sub>2</sub>O<sub>5</sub>, SO<sub>3</sub>, SrO, TiO<sub>2</sub>.</li> </ul> |

|  |   |   |
|--|---|---|
|  |   | <ul style="list-style-type: none"> <li>• Internal laboratory QAQC checks include the analyses of standards, blanks and duplicates.</li> <li>• Further assay checking was carried out on representative drillhole composites testing by XRF and ICP (Induced Coupled Plasma Mass Spectrometry) against the original 1m assay results. This also included checks on the same composites by an external laboratory, Intertek, Perth.</li> <li>• Acceptable levels of precision and accuracy were established.</li> <li>• A total of 2,974 SiO<sub>2</sub> assays were used in the Mineral Resource Estimate.</li> </ul>  |
| <b>Verification of sampling and assaying</b> | <ul style="list-style-type: none"> <li>• <i>The verification of significant intersections by either independent or alternative company Personnel.</i></li> <li>• <i>The use of twinned holes.</i></li> <li>• <i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></li> <li>• <i>Discuss any adjustment to assay data.</i></li> </ul>           | <ul style="list-style-type: none"> <li>• All data was captured and stored in both hard copy and electronic format.</li> <li>• Significant intersections were independently validated by Ausrocks against geological logging and the geological model.</li> <li>• Numerous holes have been twinned with air-core and some hand-auger to check repeatability of drill results. To date, there is a strong correlation between results from different type holes and different assay batches. Downhole variability is matched in different drill programs and different assay batches.</li> <li>• Assay data had to be adjusted in some locations for the 0-1m interval due to minor topsoil contamination.</li> </ul> |
| <b>Location of data points</b>               | <ul style="list-style-type: none"> <li>• <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></li> <li>• <i>Specification of the grid system used.</i></li> <li>• <i>Quality and adequacy of topographic control.</i></li> </ul>  | <ul style="list-style-type: none"> <li>• All drill holes were initially located using a handheld GPS with an accuracy of 5m for Easting and Northing. GDA94 Zone 55 grid coordinate system was used.</li> <li>• A contract registered surveyor from Veris Ltd subsequently used a differential GPS to pick up the drillhole Easting, Northing and Elevation values. Latest drill program is yet to receive final surveys.</li> <li>• LiDAR topography and imagery (Veris Ltd, July 2020) with a vertical accuracy of &lt;10cm was used as the topographic surface. Collar RL's draped against this surface verifies the accuracy of the hole locations.</li> </ul>  |
| <b>Data spacing and distribution</b>         | <ul style="list-style-type: none"> <li>• <i>Data spacing for reporting of Exploration Results.</i></li> <li>• <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></li> <li>• <i>Whether sample compositing has been applied.</i></li> </ul> | <ul style="list-style-type: none"> <li>• Drill spacing and distribution is sufficient to allow valid interpretation of geological and grade continuity for a Measured Mineral Resource, Indicated Mineral Resource and Inferred Mineral Resource where determined. Drilling has been completed at varying spacings across the Resource Area.</li> <li>• Drill spacing and interpreted geological continuity has allowed three</li> </ul>  |

|  |  |  |
|--|--|--|
|  |  | <p>resource categories to be defined which have been estimated in accordance with the JORC Code (2012) and are defined as follows:</p> <ul style="list-style-type: none"> <li>• <b>Measured Mineral Resource:</b> Area with drillholes completed at semi-gridded spacing &lt;150m x 150m ending in basement/water table.</li> <li>• <b>Indicated Mineral Resource:</b> Area with drillholes at a confirmatory level spacing (150m-250m) ending in basement/water table.</li> <li>• <b>Inferred Mineral Resource:</b> Areas with drillholes at a scout level spacing (250m-400m).</li> <li>• No sample compositing was undertaken.</li> </ul> |
| <b>Orientation of data in relation to geological structure</b> | <ul style="list-style-type: none"> <li>• <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></li> <li>• <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></li> </ul> | <ul style="list-style-type: none"> <li>• All drilling is vertical, intersecting the dune field geology essentially normal or at 90 degrees to the dune sand formation. Drilling has been completed in ten (10) separate programs aerially across a semi-regular grid approximately 150m x 150m.</li> <li>• The dune profiles have been observed in a number of vertical exposures within the wider dunefield complex. The orientation of the drilling undertaken is assessed to provide representative intersections and unbiased data for the deposit.</li> </ul>   |
| <b>Sample security</b>   | <ul style="list-style-type: none"> <li>• <i>The measures taken to ensure sample security.</i></li> </ul>   | <ul style="list-style-type: none"> <li>• Sample collection and transport directly from the field was undertaken by company personnel following company procedures.</li> <li>• Samples were placed into labelled calico bags, tied, and transported daily to the Cooktown base. They were then palletised and directly truck transported to ALS Laboratories, both Townsville and later Brisbane.</li> <li>• Received samples were checked against the sample dispatch documents and a reconciliation report provided by the laboratory.</li> </ul>   |
| <b>Audits or reviews</b>                                       | <ul style="list-style-type: none"> <li>• <i>The results of any audits or reviews of sampling techniques and data.</i></li> </ul>   | <ul style="list-style-type: none"> <li>• Reviews were conducted internally by Diatrema Resources Limited and third-party consultants Ausrocks Pty Ltd and found to be consistent.</li> <li>• A 3<sup>rd</sup> party review was conducted on the July 2021 Mineral Resource Estimate Report by Resolve Mining Solutions who reported “no fatal flaws” based on the elements reviewed.</li> </ul>  |



## SECTION 2 REPORTING OF EXPLORATION RESULTS

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

| Criteria                                       | JORC Code explanation  | Commentary  |
|--|--|---|
| <b>Mineral tenement and land tenure status</b> | <ul style="list-style-type: none"> <li>• <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></li> <li>• <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></li> </ul> | <ul style="list-style-type: none"> <li>• The Galalar Silica Sand Project is located in Far North Queensland, approximately 200km north of Cairns and 20km north of Cooktown. The project lies in the very southern part of EPM 17795</li> <li>• Diatrene was granted EPM 17795 “Cape Bedford” on 22 June 2016 for a period of 5 years targeting heavy mineral sand and silica sand. EPM 17795 is an extensive EPM comprising 147 continuous subblocks (approx. 480km<sup>2</sup>) covering the majority of the Cape Flattery-Cape Bedford Quaternary dunefield complex. A renewal for an additional 5 years was lodged in 2021. As of September 2021, the tenure was in good standing.</li> <li>• Diatrene executed a Compensation and Conduct Agreement (CCA) in January 2017 and a Cultural Heritage Agreement (CCA) in June 2017 with the traditional owners, the Hopevale Congress (HVC).</li> <li>• The Galalar Silica Sand Project has advanced to the stage whereby a Mining Lease Application (MLA) 100235 was lodged 23 December 2019, covering 523 hectares and the vast majority of the Galalar Silica Sand Project. A second Infrastructure MLA 100285 was lodged on 10 June 2021 over 29.88ha which provides access to the proposed Barge Loading Facility at Nob Point. Additionally, two further neighbouring EPM’s related to the project have been taken up by Diatrene, EPM 27265 (granted 30<sup>th</sup> January 2020), and application EPMA 27430 which covers the proposed barge loading area.</li> </ul> |
| <b>Exploration done by other parties</b>       | <ul style="list-style-type: none"> <li>• <i>Acknowledgment and appraisal of exploration by other parties.</i></li> </ul>   | <ul style="list-style-type: none"> <li>• Previous exploration was carried out in the area during the 1970’s by Ocean Mining and 1980’s by Breen Industrial Silica Qld Pty Ltd, primarily at reconnaissance level.</li> <li>• There has been no other exploration since 1986 until 2016 and the granting of Diatrene’s EPM 17795.</li> <li>• The historical exploration data is of limited use for Mineral Resource Estimation since it comprises shallow hand-auger drilling and is typically not accurately located.</li> </ul>  |

| Criteria       | JORC Code explanation  | Commentary  |
|----------------|--|---|
| <b>Geology</b> | <ul style="list-style-type: none"> <li><i>Deposit type, geological setting and style of mineralisation.</i></li> </ul> | <ul style="list-style-type: none"> <li>The geology comprises variably re-worked aeolian sand (silica) dune deposits associated with Quaternary age sand-dune complex. The mineralisation is high grade quartz (silica) and it occurs as sand deposits within an aeolian dune complex.</li> <li>The Galalar Silica Sand Project's Galalar Deposit is located at the southern end of the Cape Flattery/Cape Bedford dune field complex, located approx. 20km north of Cooktown. The Cape Flattery/Cape Bedford dune field fringes the coastline as a part of a large Quaternary (Pleistocene to Holocene) age silica sand mass, extending along the coastline for approx. 50km and up to 10km inland, and, averaging 25-30m in thickness, with some dunes extending over 90m high in elevation. The linear dunes have distinctive topography, striking approx. 320 to 330 degrees.</li> <li>Cape Flattery Silica Mines, which lies at the northern end of the dune field, has been in operation since 1967 and is Queensland's largest producer of world class silica and the highest production of silica sand of any mine in the world.</li> <li>The linear sand dunes developed predominantly during the dry Pleistocene glacial and interglacial periods when the sea-level receded and fluctuated approx. 100m below present. Prior to sea level rises in the Holocene (10,000 years before present) sand was blown inland by the prevailing south-easterly winds to form linear dunes and is now interspersed with numerous lakes and swamps. The land sand masses form mainly as elongate parabolic and longitudinal dunes. Multiple episodes of dune building are evident. Most dunes are stabilised by vegetation, but some active dune fronts occur. Periods of water level table fluctuations, erosion and depositional phases have occurred.</li> <li>The Galalar Silica Sand Project's Galalar Deposit is located just inland between two prominent coastal points, namely the Cape Bedford peninsular 6km to the north and Nob Point 3km to the southeast. The Galalar Deposit is divided into three adjoining dune sand areas known as Galalar Main, Galalar East and Galalar West. The dunes consist of transgressive, elongate parabolic dunes, variously stabilised by vegetation. The white sands are high grade, consistently averaging over 99% silica. Whilst some coloured cream, yellow and brown sands have</li> </ul> |

| Criteria  | JORC Code explanation   | Commentary  |
|---|---|---|
|   |   | been returned in drill samples, the silica grades remain very high and no obvious zonation or domaining has been recognised across the project area. Petrology identifies the sand as very pale white, rounded, quartzose, free flowing and clean sand. The predominant mineral grain is quartz.  |
| <b>Drill hole Information</b>   | <ul style="list-style-type: none"> <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 style="list-style-type: none"> <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 not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul> | <ul style="list-style-type: none"> <li>• A tabulation of the material drill holes used in this Mineral Resource Estimation is attached to this JORC Table 1.</li> <li>• Relative to the previous Mineral Resource Estimate (August 2021), an additional 54 drillholes and 1 auger-hole has been added. These holes are predominately infill holes in the previously defined Resource Area and exploration holes in Galalar Extended.</li> </ul> |
| <b>Data aggregation methods</b>   | <ul style="list-style-type: none"> <li>• 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.</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 style="list-style-type: none"> <li>• A cut-off grade of 98.5% silica has been used for the Mineral Resource Estimation.</li> <li>• No minimum or maximum grade truncations have been used.</li> <li>• Thirty-five (35), early holes were sampled at 3m intervals which have been normalised to 1m intervals (representing 252 assay intervals). Thirteen (13) of these holes have been twinned and sampled at 1m intervals.</li> </ul>      |
| <b>Relationship between mineralisation widths and intercept lengths</b> | <ul style="list-style-type: none"> <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 (e.g., 'down hole length, true width not known').</li> </ul>  | <ul style="list-style-type: none"> <li>• All drilling was vertical (-90°) intersecting undulating flat-lying aeolian dune sands.</li> <li>• Down hole length correlates with true width.</li> </ul>   |

| Criteria                                  | JORC Code explanation  | Commentary  |
|---|--|---|
| <b>Diagrams</b>                           | <ul style="list-style-type: none"> <li>• <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></li> </ul>  | <ul style="list-style-type: none"> <li>• Plan view of drill hole collar locations and appropriate sectional views are attached.</li> </ul>  |
| <b>Balanced reporting</b>                 | <ul style="list-style-type: none"> <li>• <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></li> </ul>   | <ul style="list-style-type: none"> <li>• All relevant exploration assay results have been reported.</li> </ul>  |
| <b>Other substantive exploration data</b> | <ul style="list-style-type: none"> <li>• <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></li> </ul> | <ul style="list-style-type: none"> <li>• Mineral Resource extends below the water table in areas of Galalar East but the depths and extents are untested.</li> <li>• A small proportion of the Mineral Resource is located outside the Mining Lease Application area within EPM 27265.</li> <li>• Iron (Fe<sub>2</sub>O<sub>3</sub>) in various forms may potentially act as a contaminant for very high-quality “processed” end products.</li> <li>• Three separate metallurgical test programs have been undertaken on the Galalar Silica Sand Project. All confirmed the potential for the substantial recovery of high quality, low iron, silica sand.</li> </ul>   |
| <b>Further work</b>                       | <ul style="list-style-type: none"> <li>• <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></li> <li>• <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></li> </ul>                           | <ul style="list-style-type: none"> <li>• Complete assessment of mining, processing, metallurgical, infrastructure, economic, marketing, legal, environment, social and government factors or any other modifying factors to enable a proportion of this Mineral Resource Estimate to be upgraded to Ore Reserve status, according to JORC Code (2012) Guidelines.</li> <li>• Undertake further infill drilling to best complete a semi-gridded coverage across the entire Resource Area, to upgrade the Mineral Resource categories and size and increase potential Ore Reserve size.</li> <li>• Extend drilling throughout Galalar North and Galalar West, especially completing regularly - spaced cross -dune drilling.</li> <li>• Complete drilling along the western flank of Galalar Main Dune, to better define its limit.</li> <li>• Review the model and especially isolated drillhole and assay anomalies, including high Fe<sub>2</sub>O<sub>3</sub> zones.</li> <li>• Ensure Sampling and Assaying Procedures are continuously reviewed and improved. Maintain systematic application of assay checking.</li> <li>• Conduct density “certified” bulk density measurements.</li> </ul> |

| Criteria | JORC Code explanation | Commentary   |
|----------|-----------------------|--|
|          |                       | <ul style="list-style-type: none"> <li>Verify topsoil thickness across the resource area, given the variation in vegetation density from west to east and from southeast to northwest throughout the Resource Area.</li> </ul> |

### 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   |
|----------------------------------|---|--|
| <b>Database integrity</b>        | <ul style="list-style-type: none"> <li>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.</li> <li>Data validation procedures used.</li> </ul>   | <ul style="list-style-type: none"> <li>The database was originally constructed, validated and electronically provided by Diatreme Resources Limited to Ausrocks Pty Ltd.</li> <li>Ausrocks reformatted the database into appropriate file formats checking the veracity of the assay results. The data was further validated and cross checked against the geological logs and the chip tray photographs.</li> <li>Micromine 2021 validated the files which were used for the Mineral Resource Estimate.</li> </ul>  |
| <b>Site visits</b>               | <ul style="list-style-type: none"> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>   | <ul style="list-style-type: none"> <li>The Competent Person completed and recorded a site visit of the Galalar Silica Sand Project on 29<sup>th</sup> of July 2021. The visit provided an understanding of the dune sand formation, the general geology, geography and logistics. The visit confirmed the completed exploration work across the Resource Area.</li> <li>The Competent Person has previously visited Cape Flattery/Cape Bedford and has experience of the dunefield complex.</li> </ul>   |
| <b>Geological interpretation</b> | <ul style="list-style-type: none"> <li>Confidence in (or conversely, the uncertainty of ) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> <li>The factors affecting continuity both of grade and geology.</li> </ul> | <ul style="list-style-type: none"> <li>The Galalar Silica Sand Project Deposit has been well defined by drilling and the geological controls are reasonably well understood.</li> <li>The known nature and formation of the dune sands, together with consistent high silica grades achieved in drillholes, places a high degree of confidence in the geological interpretation. Continuity of geology (chip tray photographs) and grade (assays) can be readily identified and traced between all drillholes.</li> <li>The interpreted geology of the Galalar Deposit is robust, and any alternative interpretation of the deposit is considered unlikely to have a significant influence on the total Mineral Resource Estimate</li> </ul> |

| Criteria          | JORC Code explanation   | Commentary  |
|-------------------|---|---|
|                   |   | <p>undertaken.</p> <ul style="list-style-type: none"> <li>• No major factors affect continuity both of grade and geology.</li> <li>• Geological controls were applied to multiple cross and long sections to constrain the final resource wireframe.</li> <li>• Prior to interpolating and assigning assay values to each block, a solid was generated to model the overall deposit shape and volume by applying the following parameters: <ul style="list-style-type: none"> <li>• Top surface - defined as the base of topsoil which is 0.3m below surface topography.</li> <li>• Bottom surface – a gridded surface based on drillhole depths and geological interpreted boundary points.</li> <li>• Boundary – the resource boundary was defined by the following considerations: <ul style="list-style-type: none"> <li>▪ Surface dune extents based on imagery and interpretation.</li> <li>▪ Geological interpretation of drillholes.</li> <li>▪ The area where the top and bottom surfaces intersected.</li> <li>▪ Area of influence around drillholes determined by confidence level.</li> <li>▪ Several iterations were run to cross check boundary sensitivities.</li> </ul> </li> </ul> </li> </ul> |
| <b>Dimensions</b> | <ul style="list-style-type: none"> <li>• <i>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.</i></li> </ul> | <ul style="list-style-type: none"> <li>• Within the Galalar Dune System, there are some relative subdivisions based on location, dune size and topography. This includes: <ul style="list-style-type: none"> <li>• Galalar West</li> <li>• Galalar Main</li> <li>• Galalar East</li> <li>• Galalar North *</li> </ul> <p>* Galalar North extends outside the northern Mining Lease Boundary to an extensive area known as <b>Galalar Extended</b>.</p> </li> <li>• The extent and variability of the Mineral Resource is expressed in terms of the full Resource Area <ul style="list-style-type: none"> <li>• <b>Max Length (along strike):</b> 4.3 km</li> <li>• <b>Max Width:</b> 1.7km</li> <li>• <b>Area:</b> The Mineral Resource covers an area of approximately</li> </ul> </li> </ul>  |



| Criteria  | JORC Code explanation   | Commentary  |
|---|---|---|
|   |   | <p>386ha.</p> <ul style="list-style-type: none"> <li>• <b>Average Depth:</b> The average thickness of the total resource within the Resource Area is 15.5m.</li> <li>• <b>Top of Resource:</b> The top of the resource corresponds to the topography ranging from 4.5mRL to 75mRL.</li> <li>• <b>Bottom of Resource:</b> The base of the resource corresponds to basement/water table ranging from 0.5mRL to 68.5mRL.</li> </ul>  |
| <p><b>Estimation and modelling techniques</b></p> | <ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</i></li> <li>• <i>The assumptions made regarding recovery of by-products.</i></li> <li>• <i>Estimation of deleterious elements or other non-grade variables of economic significance (e.g. Sulphur for acid mine drainage characterisation).</i></li> <li>• <i>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</i></li> <li>• <i>Any assumptions behind modelling of selective mining units.</i></li> <li>• <i>Any assumptions about correlation between variables.</i></li> <li>• <i>Description of how the geological interpretation was used to control the resource estimates.</i></li> <li>• <i>Discussion of basis for using or not using grade cutting or capping.</i></li> <li>• <i>The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</i></li> </ul> | <ul style="list-style-type: none"> <li>• Sample intervals have been collected at 1m and 3m through the various drilling program. Normalising of the 3m intervals of the assay data to 1m was undertaken to ensure there was no sample bias based on the sample interval length.</li> <li>• Using Micromine 2021, Statistical and Geostatistical analyses was undertaken on silica (SiO<sub>2</sub>) and the key impurities (Fe<sub>2</sub>O<sub>3</sub>, TiO<sub>2</sub>, LOI, and Al<sub>2</sub>O<sub>3</sub>) of the dataset. Assay methods also returned results for Al<sub>2</sub>O<sub>3</sub>, BaO, CaO, Cr<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, K<sub>2</sub>O, MgO, MnO, Na<sub>2</sub>O, P<sub>2</sub>O<sub>5</sub>, SO<sub>3</sub>, SrO, TiO<sub>2</sub> but they were not examined due to their very low grades (at or near detection range).</li> <li>• All sample intervals underwent basic statistical analysis (minimum, maximum, mean etc.). All variables showed that there were no requirements for top or bottom cutting.</li> <li>• The raw data distribution for silica and the key impurities (Fe<sub>2</sub>O<sub>3</sub>, TiO<sub>2</sub>, LOI, and Al<sub>2</sub>O<sub>3</sub>) were analysed in detail and used in the block modelling.</li> <li>• Parent block sizing was chosen as 10mE x 10mN x 1mRL which was then sub-blocked to 1m E x 1m N x 1m RL.</li> <li>• The Ordinary Kriging (OK) method was used to estimate the grades and populate the block model.</li> <li>• Each block within the block model was assigned values for SiO<sub>2</sub>, Fe<sub>2</sub>O<sub>3</sub>, TiO<sub>2</sub>, LOI and Al<sub>2</sub>O<sub>3</sub>.</li> <li>• Cross-sections throughout the block model were compared with the same sections through the drillhole data to showing that the modelling completed was indicative of the input data and the mineralisation.</li> <li>• Multiple cross section iterations were used to further define and constrain the model where data was minimal.</li> </ul> |

| Criteria                             | JORC Code explanation   | Commentary   |
|--------------------------------------|---|--|
|                                      |   | <ul style="list-style-type: none"> <li>Finally, swath plots were used to validate the interpolation technique to ensure accuracy. Swath plots compared the drillhole and block model with SiO<sub>2</sub> and Fe<sub>2</sub>O<sub>3</sub> grades which showed sufficient spatial correlation between both modelled estimates and input drillhole grades.</li> <li>The Inverse Distance Weighting (IDW) method was used to check the model and yielded similar results.</li> </ul>  |
| <b>Moisture</b>                      | <ul style="list-style-type: none"> <li><i>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</i></li> </ul>   | <ul style="list-style-type: none"> <li>Moisture content testing has been conducted on eight (8) holes which were logged in 1m intervals with samples sealed within plastic bags and then placed in canvas sample bags and were sent to ALS Brisbane.</li> </ul>  |
| <b>Cut-off parameters</b>            | <ul style="list-style-type: none"> <li><i>The basis of the adopted cut-off grade(s) or quality parameters applied.</i></li> </ul>   | <ul style="list-style-type: none"> <li>The SiO<sub>2</sub> content by percentage was used to quantify in-situ material as a resource due to the final marketable product being a high SiO<sub>2</sub> grade sand. Cut-off grades were adopted based on analysis of raw assay data and grade tonnage plots. The following cut-off grades were used for three resource reporting levels: <ul style="list-style-type: none"> <li>Measured Mineral Resource – SiO<sub>2</sub> cut-off grade of 98.5%.</li> <li>Indicated Mineral Resource – SiO<sub>2</sub> cut-off grade of 98.5%.</li> <li>Inferred Mineral – SiO<sub>2</sub> cut-off grade of 98.5%.</li> </ul> </li> </ul>   |
| <b>Mining factors or assumptions</b> | <ul style="list-style-type: none"> <li><i>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 made.</i></li> </ul> | <ul style="list-style-type: none"> <li>It is expected that mining will be conducted directly from the face by a Wheel Loader which will load a feeder unit with trommel. Material will then be mixed with water to a slurry and pumped through pipes to the processing plant. This mining method is flexible and is considered suitable for the deposit and is not likely to unnecessarily constrain the Mineral Resources.</li> <li>Dilution was not considered in the Mineral Resource Estimate. In some holes there was minor additional resource below the &gt;98.5% silica floor which is slightly lower grade material and would only marginally dilute the product.</li> <li>Based on the sample assays and geological logs, the top 0.3m of the deposit has been excluded from the Mineral Resource Estimate as it is assumed that this would be a soil and vegetation layer and would be scalped when mining the deposit and re-used for rehabilitation.</li> </ul> |

| Criteria                                    | JORC Code explanation   | Commentary   |
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| <b>Metallurgical factors or assumptions</b> | <ul style="list-style-type: none"> <li><i>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.</i></li> </ul>   | <ul style="list-style-type: none"> <li>A number of metallurgical test programs have been undertaken on the Galalar Silica Sand Project. These tests support the potential metallurgical amenability for silica mining and processing, yielding a high purity, low iron silica product(s).</li> <li>In March 2018, initial metallurgical samples were submitted to IHC Robbins for characterization test work (screening, de-sliming, sizing, HLS and XRF analysis) and wet tabling (two stage).</li> <li>In August 2018, IHC Robbins completed a bulk (1.8t) laboratory sample to determine viability of product through a one stage of Mineral Technologies MG12 spiral, which yielded 99.9% SiO<sub>2</sub> at 88% recovery.</li> <li>In December 2018, (CNBM) Bengbu Design &amp; Research Institute for Glass Industry Co., Ltd completed bulk (0.35t) laboratory sample to determine the viability of the product as high value glass product which resulted in 78% recovery of a &gt;99% SiO<sub>2</sub> raw sample to 99.9% SiO<sub>2</sub>.</li> <li>In November 2019, Qinfeng Mining Co Ltd (QMCL) conducted initial small-scale evaluations that demonstrated the suitability of some of the raw sand to be processed by additional chemical treatment to produce an upgraded, low iron high value product.</li> <li>Mineral Technologies (MT), a sand industry specialist, undertook final metallurgical test work for the Galalar Silica Project's pre-feasibility study (PFS) with work completed in August 2021. The testing program used the bulk samples obtained in the October 2020 drilling program. Two variability samples from other areas within the first 15 years' mining were also processed to finalise the process flowsheet.</li> </ul> |
| <b>Environmental factors or assumptions</b> | <ul style="list-style-type: none"> <li><i>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</i></li> </ul> | <ul style="list-style-type: none"> <li>Due to the high-grade nature of the deposit, it is expected that there will be ~20% tailings produced through processing and thus minimal disposal.</li> <li>There is a small offset applied on either side of Alligator Creek which bisects Galalar East and Galalar West as well as Deep Creek located east of Galalar East.</li> <li>Some potential environmentally sensitive areas have been identified within the resource area however these have yet to be excluded from any resource figures until these areas have been accurately categorized.</li> </ul>   |

| Criteria                      | JORC Code explanation  | Commentary  |
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|                               | <i>made.</i>   |   |
| <b>Bulk density</b>           | <ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>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.</i></li> <li>• <i>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</i></li> </ul> | <ul style="list-style-type: none"> <li>• Seventy-eight (78) bulk density measurements have been undertaken on site using a Dormer Push Tube. The sampling procedure is considered industry standard for this type of field assessment</li> <li>• A material density of <b>1.6 t/m<sup>3</sup></b> was used for the Mineral Resource Estimate. However, the density measurements showed variable results with a range of 1.42 t/m<sup>3</sup> to 1.75 t/m<sup>3</sup>.</li> </ul>  |
| <b>Classification</b>         | <ul style="list-style-type: none"> <li>• <i>The basis for the classification of the Mineral Resources into varying confidence categories.</i></li> <li>• <i>Whether appropriate account has been taken of all relevant factors (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).</i></li> <li>• <i>Whether the result appropriately reflects the Competent Person's view of the deposit.</i></li> </ul>   | <ul style="list-style-type: none"> <li>• Drill spacing and interpreted geological continuity has allowed three resource categories to be defined which have been estimated in accordance with the JORC Code (2012) and are defined as follows: <ul style="list-style-type: none"> <li>• <b>Measured Mineral Resource:</b> Area with drillholes completed at semi-gridded spacing &lt;150m x 150m ending in basement/water table.</li> <li>• <b>Indicated Mineral Resource:</b> Area with drillholes at a confirmatory level spacing (150m-250m) ending in basement/water table.</li> <li>• <b>Inferred Mineral Resource:</b> Areas with drillholes at a scout level spacing (250m-400m).</li> </ul> </li> <li>• The result accurately reflects the Competent Person's view of the deposit.</li> </ul> |
| <b>Audits or reviews</b>      | <ul style="list-style-type: none"> <li>• <i>The results of any audits or reviews of Mineral Resource estimates.</i></li> </ul>   | <ul style="list-style-type: none"> <li>• A 3<sup>rd</sup> party review was conducted on the July 2021 Mineral Resource Estimate Report by Resolve Mining Solutions who reported "no fatal flaws" based on the elements reviewed.</li> <li>• Previous Mineral Resource Estimates have been completed by separate Competent Persons and reviewed internally by Ausrocks Pty Ltd.</li> </ul>   |
| <b>Discussion of relative</b> | <ul style="list-style-type: none"> <li>• <i>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</i></li> </ul>   | <ul style="list-style-type: none"> <li>• It is the opinion of the Competent Person that the relative accuracy and confidence level across the reported geological intervals is adequate, given the drill density and continuity of geochemical samples.</li> </ul>  |

| Criteria                        | JORC Code explanation  | Commentary   |
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| <b>accuracy/<br/>confidence</b> | <p><i>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.</i></p> <ul style="list-style-type: none"> <li><i>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.</i></li> <li><i>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</i></li> </ul> | <ul style="list-style-type: none"> <li>The Resource boundary and the reported geological confidence intervals is relatively tightly constrained based on the drill density, although some further drill definition should be undertaken to better constrain dune sides/perimeters.</li> <li>No production data is available at present as this is a Greenfields project. However, Cape Flattery Silica Mine lies in the same adjoining coastal dunes immediately to the North, suggesting potential viability</li> </ul> |