12th February 2019

PERPTUAL COMMENCES HIGH GRADE HIGH PRUITY SILICA SANDS EXPLORATION SAMPLING AT BEHARRA, WA

- *Initial auger drilling program commenced at Beharra*

- *Program aims to determine the product specifications of high grade silica present at Beharra from shallow auger drilling and to determine potential purity and delineation of an exploration target*

  - *High grade silica sands target has potential to deliver high purity SiO2, which has already been mapped by Geological Survey of Western Australia over 13km of strike and a minimum width of 1.4km*

- *Initial focus of exploration is across the southern quadrant of the Beharra tenure underlain by Vacant Crown Land*

  - *Beharra South has a strike length of 7,215m and an average width of 1,700m*

  - *Area previously drill tested for heavy mineral sands demonstrating targets and thicknesses ranging from 6 to 33m*
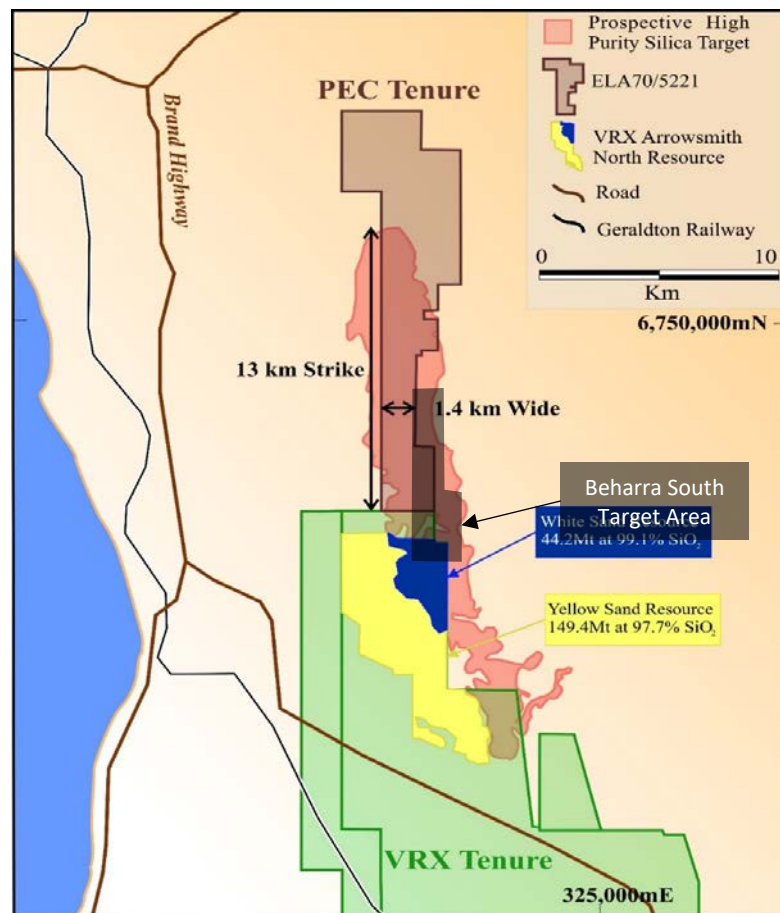

Figure 1: Beharra Project- Location, Adjacent Tenure & Beharra South Target

Perpetual Resources Ltd (ASX: PEC) "the Company or Perpetual" is pleased to announce that it has commenced preliminary field-based exploration at the Beharra Silica Sand Project, "the Project or Beharra Project", which the Company presently has under exclusive option to acquire.

The initial exploration program proposed consists of shallow auger drilling across the southern quadrant of the Project underlain by Vacant Crown Land. The auger drilling program aims to determine the raw product specifications of the sand and to provide samples to conduct initial metallurgical testing to determine the final product specifications.

Perpetual Non-Executive Chairman Mr Julian Babarczy stated:

"Within less than a week of announcing the option to acquire the Beharra high purity silica sands Project, Perpetual is excited to commence its initial auger drilling program. The drilling will test 5km of the 13km strike mapped and will provide an initial indication towards the raw product specifications.

Initial metallurgical testing of the samples will also be completed to understand the likely final product specifications to guide in identification of suitable end user markets and associated potential product pricing".
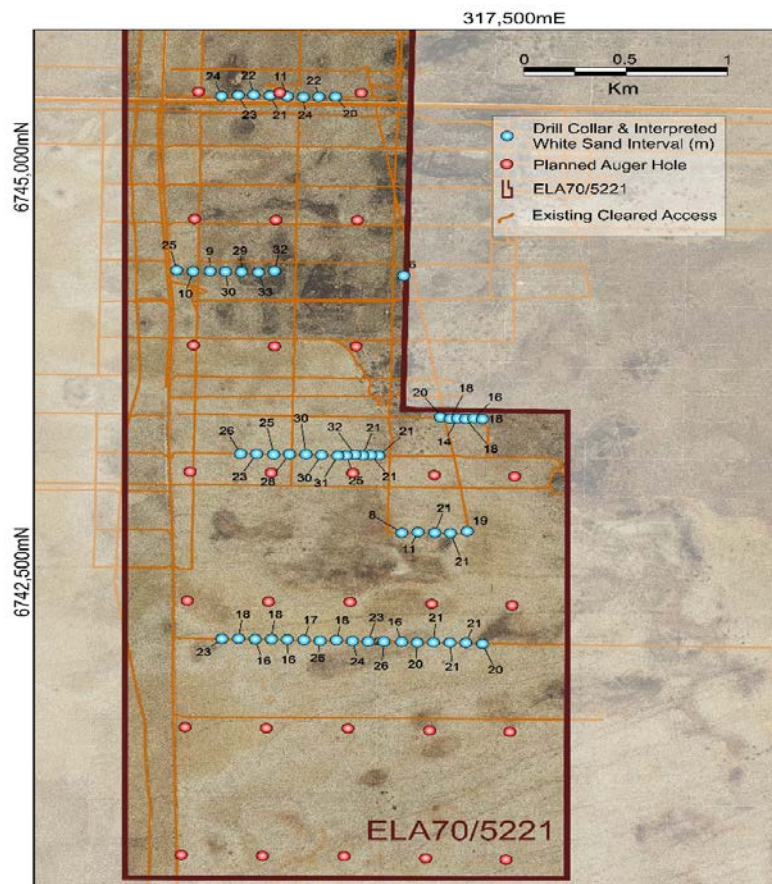

Figure 2: Beharra Planned Exploration Program

Exploration Program

Auger drilling to a maximum depth of 2m is to be undertaken on approximate 400x800m grid for a total of 29 holes, across the southern quadrant of the Project, covering a strike length of approximately 5km. The work is being conducted by contractors operating under a Miner's Right across Vacant Crown Land.

Representative composite samples of the white-grey high-grade silica sands will be submitted for metallurgical test work to determine the sand mineralogy and purity of the silica. Preliminary processing test work will be undertaken to establish the viability of producing a high purity silica product exceeding 99.5% SiO_2

About Beharra (Exclusive Option for PEC to acquire 100%)

The Beharra Project is located 300km north of Perth and 96 km south of the port town of Geraldton in Western Australia. Access to the Project from Geraldton (to the north) and Perth (to the south) is via the sealed Brand Highway, thence the Mt Adams unsealed road providing access to the centre of the tenure.

Rail is accessible via the Mt Adams Road, with the rail line potentially providing access directly to the Port of Geraldton. Rail distance from the road access point adjacent to the Beharra Projectis approximately 91km. The port of Geraldton is utilised as a bulk materials handling facility and is currently utilised for the export of bulk materials, minerals and concentrates. Grains, copper concentrates, zinc concentrates and nickel concentrates, mineral sands, talc and iron ore are currently being exported from the Port. Extensive heavy mineral sands mining operations occur to both the east and south of the Project area as well as natural gas production.

The Beharra Project comprises a single exploration licence application, E70/5221, covering an effective land area of 56.8m^2.

Silica Sand Market

Silica sands have an extensive range of uses including lower purity and grade applications such as construction sand, proppant sand used in well fracturing, and foundry sand. With increasing purity (>99.5% SiO_2) uses includes glass making including clear glass. Uses for purity >99.8% includes semi-conductor fillers, LCD screens, and optical glass.

High Purity Quartz (>99.95% SiO_2) is reserved for solar silicon metal, semiconductors and specialist lamp tubing as well as other high-tech applications. The markets at the high end are small and demand the highest prices ranging from $500/t to $12,000/t depending on the level of purity.

The Company believes there is potential for the Beharra Project, pending further sampling and testing, to target high purity silica exceeding 99.8% SiO_2. At these levels of purity, the market is relatively small and typically demands prices in the range of $160t-$300/t of silica.

Some of the main uses for silica of this grade are epoxy moulding compounds (EMC), liquid crystal displays (LCD) and optical glass.

The strategic location of the Project and advantageous existing infrastructure, positions the Project to be able to capitalise upon both local and potentially export markets, pending final product specifications.

-ENDS-

For enquires regarding this release please contact:
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COMPETENT PERSONS STATEMENT

The information in this announcement that relates to the proposed preliminary exploration sampling program for the Beharra Project and is based on information compiled and fairly represented by Mr Colin Ross Hastings, who is a Member of the Australian Institute of Mining & Metallurgy and consultant to Perpetual Resources Ltd. Mr Hastings is also a shareholder of Perpetual Resources Ltd. Mr Hastings has sufficient experience relevant to the style of mineralisation and type of deposit under consideration, and to the activity which he has undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Hastings consents to the inclusion in this report of the matters based on this information in the form and context in which it appears.

REFERENCES

For further information in relation to the Beharra Project and previous exploration conducted please refer to ASX Release: *PEC Secures Option to Acquire Silica Sands Project* 6th February 2019

Note: there are no changes to tables 3 since last report 6th February 2019. Table1.

Section 1, Sampling Techniques and Data, will be reported on completion of the exploration sampling program.

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.*	• The database containing the drilling data was provided by Geonomics Australia. A review of the data was undertaken by consultant geologist Mr Colin Ross Hastings. The data files including the drill hole survey files, drill hole geological files and drill hole assay files and corresponding maps were compared and other than a few files that were incomplete by fact of no geology or assays the data was considered reasonable and accurate. • The current drill hole data base consists of 901 aircore drill holes for a total length of 30,795m. The average drill hole depth was 34.2m and covered an area within and outside of the current Project area being assessed. • Within the Project area a total of 328 drill holes were in the database for a total length of 10,996m and average depth of 33.5m. The focus of the data validation was on these drill holes but specifically those in the southern one third of the Project area,
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 site visit was undertaken in November 2018 to assess the access and topography of the area and the local infrastructure as well as the exposed sand. Only the southern area (Crown Lands) of the project area was inspected. • Outcome of the visit was confirmation of eolian sands at surface, good access and relatively flat and open topography and confirmed good local infrastructure, roads, rail, towns and service, supply and labour resources.
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.*	• The geological interpretation was straight forward based on historical drill hole data and WA Geological Survey mapping. • Inferred Resource of "grey" sand undertaken for the southern part of the Project area between the southern boundaries approximate (AMG) 6,740,690mS and about 5.3km to the north to 6,746,000mS. • Some minor concern with colour codes used by different geologists however considered interpretable. The resource estimate included white and grey sands only. White made up a small proportion of the

Criteria	JORC Code explanation	Commentary
		• colour with grey being dominant in the geological logging.
		• The resource estimate is not included in this release but was calculated as part of the due diligence for the Project. Only mass (dry tonnes) was estimated, not quartz content.
		• Sand colour has been used as the controlling geological feature. The continuity of these sand units has been defined from surface exposures but also including the underlying geology from petroleum and gas well drilling, and ground water bores, by government survey geologists, like A.J Mory, Geology of the Mingenew-Dongara 1:100,000 Sheet explanation notes.
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 grey sand unit extends north-south for approximately 13km and has a width of approximately 1.5Km, based on historical HM sand drilling and geological mapping. Depth varies from 6m to +30m. Grey sand thickness and continuity is stronger in the south of the unit.
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.	• Estimation was made on volume and mass only; no silica sand estimation was made although historical HM assays indicate <1% HM and silica content >98%.
	• The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	• A silica sand volume was calculated using geological logging data from historical air cored drill holes. The search area was confined to the southern part of the licence area over a strike length of about 6kms.
	• The assumptions made regarding recovery of by-products.	• Five east-west drill hole lines were used that included 54 drill holes. The average north-south spacing between lines was approximately 1,150m and the drill hole spacing along lines was about 80m although some hole spacing on parts of some lines was 40m.
	• Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).	• Drill hole log intervals were 1m however, some holes had 2m intercepts.
	• In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	• The grey sand volume was calculated by multiplying half the line spacing distance by half hole spacing distance, then by the drill hole intercept length for grey sand. Where the intercept included other coloured sand and if the length was not >2m it was included. The total volume was the summation of each individual calculated drill hole volume.
	• 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.	• An estimate of dry tonnes was calculated by using a bulk dry density of 1.6t/m³
	• The process of validation, the checking process used, the comparison	

Criteria	JORC Code explanation	Commentary
	of model data to drill hole data, and use of reconciliation data if available.	
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Tonnages are based on a dry basis calculated from a wet density that assumed average 7% moisture content. The wet density and moisture values were extracted from public records.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• No cut-offs were applied
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 made.*	• Potential mining would involve open pit free digging load and haul methods. • The ultimate pit depth will be determined by pit wall slope angles of 30° the base of the grey sand which has not been fully tested in some areas but could exceed 30m depth. • Given the extent of the grey sand unit (estimated 13km long by 1.5km wide) there would be very little constraints on being able to mine the grey sand other than potential for ground water which based on the historical drill information and regional water bore drilling should be below the ultimate pit bottom.
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.*	• No metallurgical test work undertaken in reference to silica sand purity. It is planned to undertake metallurgical testing on the grey sand once fresh samples have been taken as part of the proposed exploration program. • It is envisaged processing of the grey sand would involve gravity screening and washing however until metallurgical test work and sand characteristics are determined, an appropriate and more detailed process route cannot be suggested. • Metallurgical assumptions on the silica sand being targeted are to extract and process a sand that has minimum 99.8% SiO_2 and <180ppm Fe_2O_3.
Environmenta l 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,*	• The extraction of the sand will leave an open void, unlike the local HM sand operators who return the tails (sand and slimes) back to the void for reshaping and rehabilitation, this proposed operation will take nearly 99% of the mined material with very little waste being generated. Environmental consideration on rehabilitation of the void needs to be investigated.

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	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.	• Minimal tails and process water containment and recovery of water needs to be addressed. • Infrastructure rehabilitation and mine closure plans need to be developed. • Noise and dust mitigation plans need to be established as well as die back management practices. • Process water supply and management of water will be subject of a hydrology study. • Heritage over the site needs to be investigated and possibility of flora and fauna surveys being undertaken. • Community engagement and licence to operate will be required.
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.*	• Bulk density and moisture content value used were taken from public information from an adjacent tenement who are exploring the same geological sand unit. • The determination was undertaken using a nuclear densometer and measured moisture content that resulted in in-situ dry density of 1.63t/m. • There was only one bulk density value used for one geological unit, grey sand.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (ie 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.*	• The grey sand resource estimate is not part of the release but undertaken as part of a desk top due diligence on the property. It addresses only volume/mass and not grade, so not considered a classified resource at this time. • Planned exploration is aimed at providing a JORC2012 compliant resource estimate. • The volume estimate does appropriately reflect the view of the Competent Person.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• No audits either external or internal have been undertaken.
Discussion of relative	• *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*	• No confidence level applied as the resource has not been classified as a Mineral Resource estimate and the approach is considered reasonable by the Competent Person.

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accuracy/ confidence	*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.*	