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ASX Limited  
Market Announcements Platform

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## Murraydium Rare Earths Project Site Visit and Drill Program Planning

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- A five-day site visit was completed on the prospective clay hosted rare earth element (REE) project in the Murray Basin, South Australia to finalise selection of drill sites for a first pass Aircore drilling program along existing roads.
  - Exploration PEPR's (Programs for Environmental Protection and Rehabilitation) are being completed together with necessary Notice of Entry Permits to be ready for lodgement once tenements have been granted.
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Frontier Resources Limited (**Frontier** or the **Company**) is pleased to announce the completion of a reconnaissance field site visit with an independent consulting geologist to site drill holes for an initial drilling program at its rare earths project in South Australia.

The Murraydium Project is located in the south-eastern region of Naracoorte in South Australia's Murray Basin, consisting of four exploration licence applications (ELA 2021/00058), covering an area of 873 square kilometres, owned 100% by Southern Rare Earths (SRE) recently acquired by Frontier (Figure 1).

The Company's focus in REE (Rare Earth Elements) is directly in line with global push for carbon neutrality driven by renewable energy (particularly wind turbine) installations and Electric Vehicle adoption driving global demand for the combination of rare earths (Refer to ASX Announcement dated 3 August 2021).

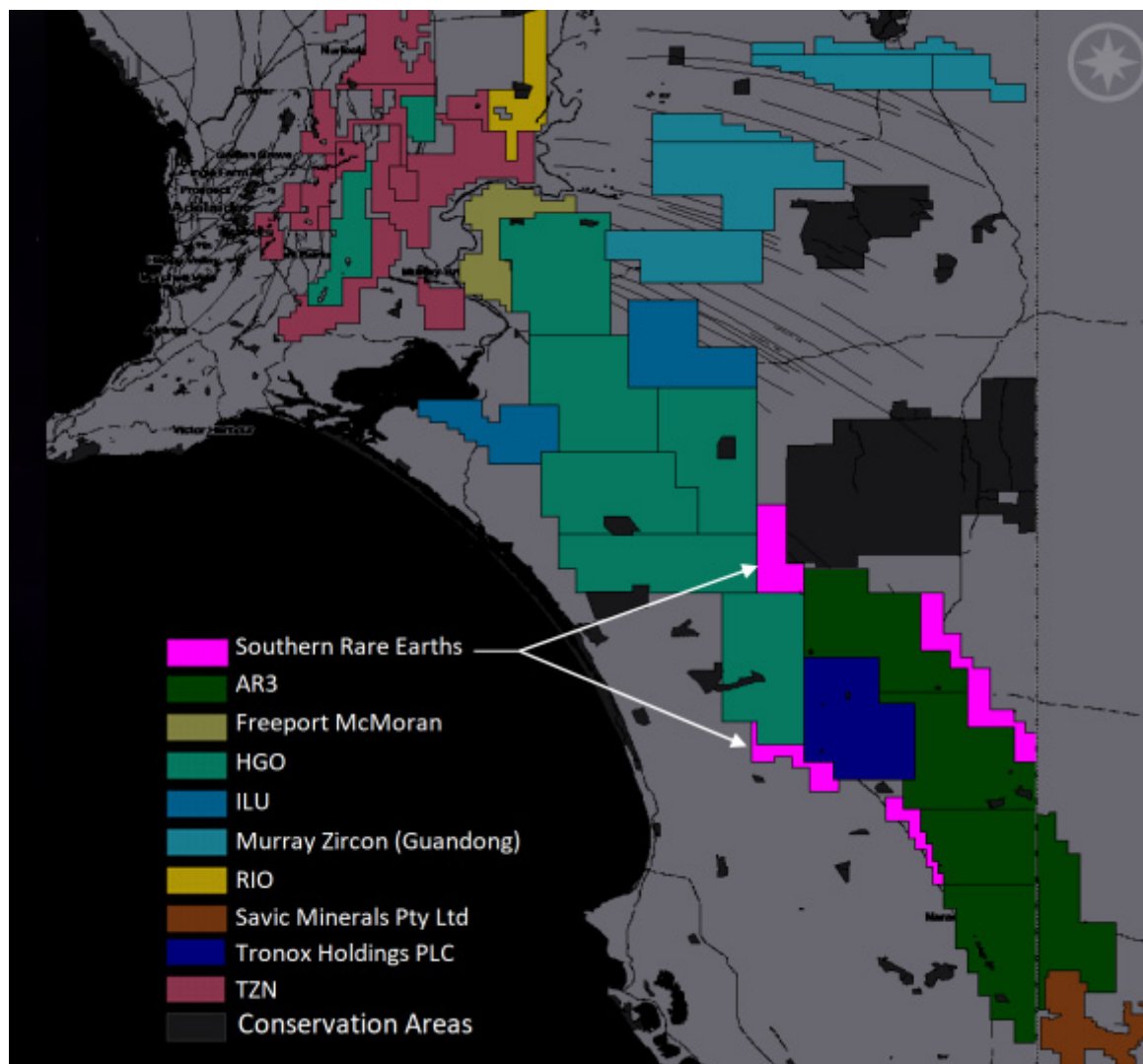
A total of 58 sites (Table 1) along existing roads have been selected for an initial drilling program to test for rare earth elements within the four tenement blocks Naracoorte, Bordertown, Jip Jip and Keith (Figure 2).

South Australian exploration licence holders have statutory requirements including the identification of relevant environmental, social and economic impacts and obtain relevant approvals prior to undertaking exploration activities. Frontier has engaged a tenement consulting specialist to assist in completing the PEPR and entry permits to be ready for lodgement once tenements have been granted.

A suitable drill contractor from South Australia has been sourced with Aircore drilling capability mounted on turbo diesel Toyota 6x6 Landcruiser ready for when PEPR and entry permits have been approved.

The project area forms part of an extensive Tertiary strand plain comprising a series of sandstone-dominant fluvial and beach-dune strand complexes. The sand units commonly form undulating sand ridges interspersed with low lying areas of clay, mud and sand.

The ASX listed Australian Rare Earths Limited (AR3) REE-bearing clays occur within the lower part of the Loxton-Parilla Sand unit which covers an extensive area of the SW Murray Basin in eastern South Australia. This is Frontier's main exploration target.



**Figure 1: Southern Rare Earths Tenements, South Australia**

Within the Murray Basin, including the AR3 owned Yellow Tail and Red Tail deposits, a number of geological units have been mapped including:

**1. *Delamarian Igneous Unit including Marcollat Granite (Cambro-Ordovician):***

The oldest rocks are a series of small outcrops including Jip Jip Rocks, exposed in the area south of Keith and within the Jip Jip tenement block. These rocks represent the “hard rock” crystalline basement to the much younger sediments of the Murray Basin in this area.

**2. *Gambier Limestone (Oligo-Miocene):***

The oldest sedimentary rocks exposed in Naracoorte and form the basement underlying the REE-bearing clay horizons that host AR3 REE deposits. The Gambier Limestone is present in the sub-surface throughout most of the area underlying Frontier’s tenements and, likewise, would form basement to any Loxton-Parilla clay deposits that are present. Establishing the depth to limestone basement is a key early exploration goal.

**3. *Loxton-Parilla Sand (Pliocene):***

Hosts of the REE-bearing clay horizons that contain the Yellow Tail and Red Tail deposits. The Loxton-Parilla Sand is a very extensive unit widely distributed across the southern Murray Basin. Extensive areas of Loxton-Parilla Sand are exposed at surface within Frontier’s Bordertown Block where it typically forms rolling terrain of low sandy hills and ridges.

This unit is the main target for REE mineralisation and may be present over a wider area in the sub-surface in the other blocks, underlying the Padthaway and Bridgewater sediments.

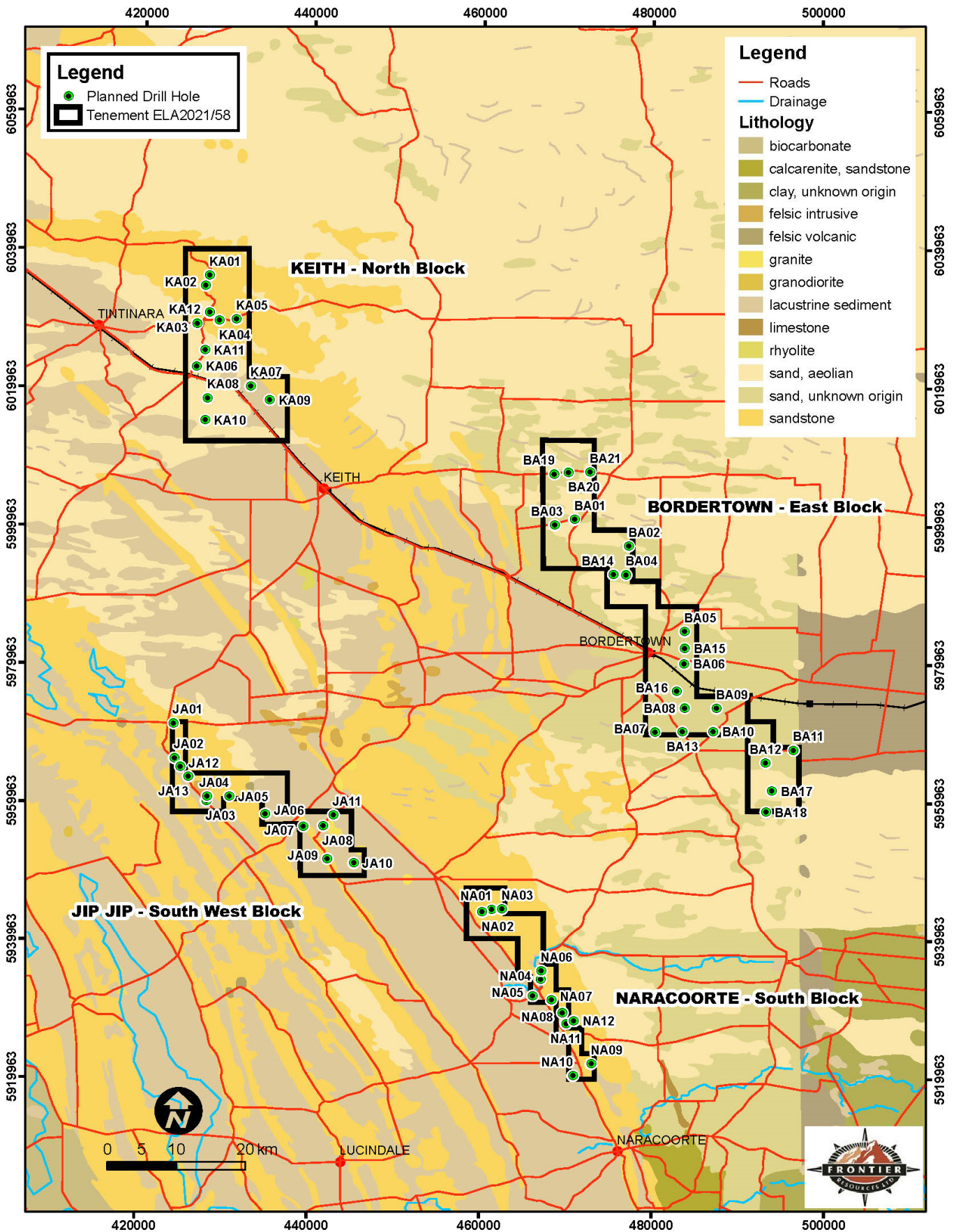


Figure 2: Southern Rare Earths Tenements Showing Proposed Drill Sites

**4. Padthaway Formation (Pleistocene):**

Sequence of calcareous mudstone, clay, clayey sand and quartz sand present in the Jip Jip, Keith and Naracoorte Blocks where it is characterised by low lying flat terrain.

### **5. *Bridgewater Formation (Pleistocene):***

The Bridgewater Formation (yellow unit in Figure 2) comprises a series of relic elongate coastal dune ridges, running NW parallel to the present-day shoreline, that were deposited over the last 1.0 million years by the retreating Southern Ocean. Long narrow beach-dune strand complexes occupy much of the Naracoorte, Jip Jip and Keith blocks typically forming low sand ridges.

### **6. *Molineaux Sand (Pleistocene-Holocene):***

The Molineaux Sand is a unit of loose fine to medium, pale yellow sand and quartzose sand that overlies the Bridgewater, Padthaway and Loxton-Parilla sand units in the Bordertown and Keith blocks.

### **Naracoorte Block (Figure 3)**

The Naracoorte Block is underlain at surface by about 90% by the Bridgewater Formation, forming the West Naracoorte Range, with minor areas of lacustrine mudstones and clays (of the Padthaway Formation) flanking the sandy unit to the west. The Bridgewater terrain comprises mainly low sandy hills covered by grazing/cropping land or areas of scrub whereas the Padthaway Formation is characterised by flat low-lying areas used for grazing, cropping and irrigation.



**Figure 3: Typical Terrain and Access Road of the Naracoorte Block**

### **Jip Jip Block (Figure 4)**

The Jip Jip Block is about 50% underlain at surface by two prominent sand ridges of the Bridgewater Formation. Hills of basement Cambro-Ordovician granite, including Jip Jip Rocks represent the “hard rock” basement underlying the entire basin sequence and are exposed in two places.

The depth to top of the basement aquifer is mostly less than 5m indicating the target Loxton-Parilla Sand unit may be very thin or absent.



**Figure 4: Typical Bridgewater terrain of the Jip Jip Block**

**Bordertown Block (Figure 5)**

Bordertown is the only block with significant areas (about 70%) of Loxton-Parilla Sand exposed at surface. This block is considered to have the best REE potential, and the initial drill plan has been expanded to total 21 holes (Table 1). Frontier has commenced independent research of historical borehole lithology logs to confirm the depth to basement and to define clay dominant horizons.



**Figure 5: Typical Loxton-Parilla terrain of the Bordertown Block at Site BA11**

**Keith Block (Figure 6)**

The Keith Block is underlain at surface about 45% of sand ridges of the Bridgewater Formation, forming the Coonalpyn Range, about 45% by the younger Molineaux Sand and about 10% by the Padthaway Formation.

The Loxton-Parilla Sand may be present in the sub-surface. Research of historical bore logs will be considered depending on the results of similar research for the Bordertown Block.



**Figure 6: Typical Terrain of the Keith Block Looking East from Flat Padthaway Terrain at Site KA09**

Apart from the northern most part of the Keith Block, access for initial roadside auger drill testing is excellent throughout the project area. On presently available evidence the Bordertown Block is considered to have the best potential for REE, followed by the Keith Block. Following the site visits, the initial drilling program has been amended to include additional holes for both blocks.

**Table 1: Proposed Drill Sites**

<b>Drill Site Name</b>	<b>Easting</b>	<b>Northing</b>	<b>Road Name</b>
BA01	470800	6001061	Penniment Road
BA02	477180	5997210	Crawford Road
BA03	468462	6000225	Penniment Road
BA04	476870	5993060	Railtz Road
BA05	483748	5984872	Bull Oak Flat Road
BA06	483699	5980223	Sullivan Road
BA07	480300	5970362	Exton Road
BA08	483761	5973821	Sullivan Road
BA09	487494	5973763	Grosser Road
BA10	487106	5970426	Exton Road
BA11	496500	5967717	Pier Point Road
BA12	493237	5965900	Bangham Road
BA13	483530	5970395	Exton Road
BA14	475370	5993110	Railtz Road
BA15	483770	5982470	Bull Oak Flat Road
BA16	482850	5976240	Lane Weiss Road
BA17	493970	5961850	Bangham Road
BA18	493270	5958790	Bangham Road
BA19	468410	6007630	Emu Flat Road
BA20	470060	6007860	Emu Flat Road
BA21	472600	6007900	Emu Flat Road
JA01	424000	5971350	Petherick Road

Drill Site Name	Easting	Northing	Road Name
JA02	424130	5966350	Ballatar Road
JA03	427919	5960156	Ballatar Road
JA04	428030	5960822	Paraweena Road
JA05	430623	5960840	Paraweena Road
JA06	434831	5958333	Minnumurra Road
JA07	439294	5956555	Burns Road
JA08	441595	5956617	Verco Road
JA09	442094	5951872	Nyroca Road
JA10	445202	5951291	Vogelsang Lane
JA11	442780	5958210	Verco Road
JA12	424830	5965120	Ballatar Road
JA13	425800	5963650	Ballatar Road
KA01	427717	6036151	Coombe Road
KA02	427265	6034686	Coombe Road
KA03	426274	6029184	Emu Springs Road
KA04	428880	6029657	Emu Springs Road
KA05	430880	6029820	Emu Springs Road
KA06	426287	6022996	Coombe Road
KA07	432646	6020162	Snoswell Road
KA08	427597	6018394	Moellers Road
KA09	434909	6018182	Sugarloaf Road
KA10	427338	6015221	Moellers Road
KA11	427267	6025383	Coombe Road
KA12	427758	6030787	Coombe Road
NA01	461340	5944650	Schubert Road
NA02	460208	5944319	Schubert Road
NA03	462505	5944739	Schubert Road
NA04	467070	5934490	Naracoorte Road
NA05	466150	5932080	Dickensens Road
NA06	467130	5935700	Naracoorte Road
NA07	468328	5931516	Elmor Road
NA08	469614	5929643	Range Road
NA09	472970	5922274	Kennys Road
NA10	470865.0	5920533	Harvey West Road
NA11	470040	5928060	Gerritsens Road
NA12	470940	5928480	Gerritsens Road

This announcement has been authorised for release by the Directors of the Company. For additional information please visit our website at [www.frontierresources.net.au](http://www.frontierresources.net.au)

## FRONTIER RESOURCES LTD

### Competent Person Statement:

The information in this report that relates to Exploration Results and Mineral Resources is based on information compiled by or compiled under the supervision of Peter Swiridiuk - Member of the Aust. Inst. of Geoscientists. Peter Swiridiuk is a Technical Consultant and Non-Executive Director for Frontier Resources. Peter Swiridiuk has sufficient experience which is relevant to the type of mineralisation and type of deposit under consideration to qualify as Competent Person as defined in the 2012 Edition of the Australasian Code of Reporting Exploration Results, Mineral Resources and Ore Resources. Peter Swiridiuk consents to the inclusion in the report of the matters based on the information in the form and context in which it appears. Additionally, Mr Swiridiuk confirms that the entity is not aware of any new information or data that materially affects the information contained in the ASX releases referred to in this report.

**Frontier Resources Ltd Exploration Licence Information (Papua New Guinea)**

<b>Exploration Licence Number and Name</b>	<b>Ownership</b>	<b>sub-blocks</b>	<b>AREA (sq.km)*</b>	<b>Grant Date</b>	<b>Expiry Date</b>
EL2531 - Tolukuma	100% Frontier Copper PNG Ltd	65	223.00	25-Feb-19	24-Feb-21
ELA2529 - Gazelle	100% Frontier Copper PNG Ltd	211	719.51	N/A	N/A
Total of Granted EL's		65	223.00		

\*1 sub-block approx. 3.41 sq.km

NB: The PNG Mining Act-1992 stipulates that EL's are granted for a renewable 2 year term (subject to satisfying work and expenditure commitments) and the PNG Government maintains the right to purchase up to 30% project equity at "Sunk Cost" if/when a Mining Lease is granted.

**Frontier Resources Ltd Exploration Licence Information (Australia)**

<b>Exploration Licence Number and Name</b>	<b>Ownership</b>	<b>AREA (sq.km)</b>	<b>Grant Date</b>	<b>Expiry Date</b>
ELA2021/00058	100% Southern Rare Earths Pty Ltd	873.00		

Note: Tenement EL2531 currently subject to a extension renewal process.