



New Palaeochannel identified as host to Titanium discoveries at Muckanippie

Marmota Limited (ASX: MEU) ('Marmota')

Marmota (ASX:MEU) is very pleased to announce that a geological review at Muckanippie has identified a regional scale palaeochannel interpreted to transect both Marmota's recent **discovery of exceptional thick rich titanium mineralisation at Muckanippie (EL 6166)** [ASX:MEU 13 Nov 2024] and **Petratherm's discovery of thick rich titanium mineralisation also at Muckanippie** [ASX:PTR 11 Sept 2024].

The identification of the new palaeochannel is highly significant as it both *defines* and *greatly enlarges* the **prospective areas for channel/fluvial hosted titanium mineralisation** on Marmota's Muckanippie tenement EL 6166, and also on Marmota's adjacent tenements EL 6679 and EL 6005 [see Fig. 1].

Palaeochannel hosted Titanium Model Key points [see Fig. 1]

- The new interpretation of the Mesozoic palaeochannel has been aided by work published as recently as November 2024 by the Geological Survey of South Australia ('GSSA') GP2 project^{1,2,3}, state geophysical imagery⁴, topographical features and open-source data⁴.
- The interpreted West-East orientated palaeochannel intersects multiple MEU tenements including MEU tenements EL 6166 (featuring the MEU titanium discovery) and EL 6679 to the west [see Fig. 1] and MEU tenements EL 6166 and EL 6005 to the east.

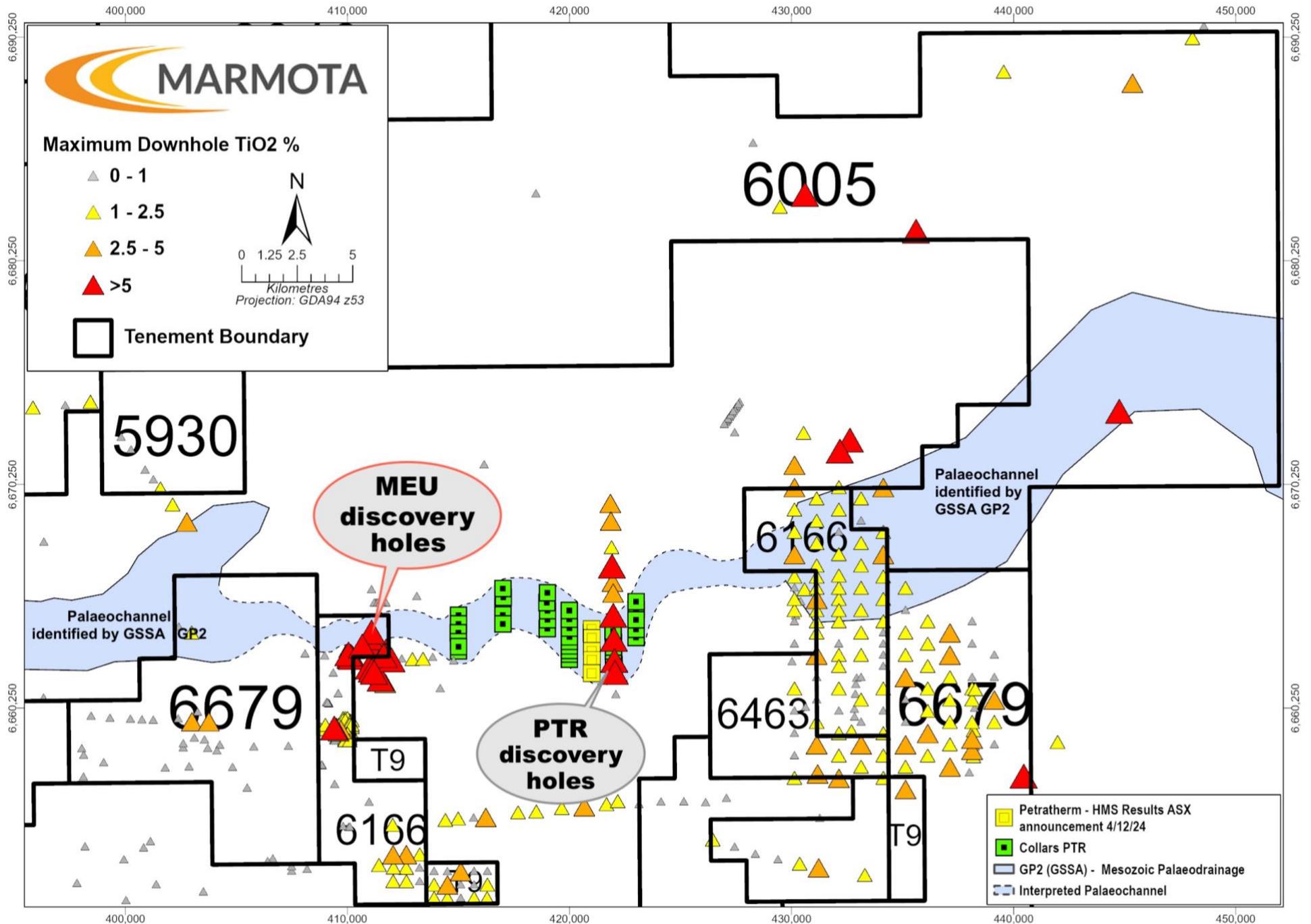
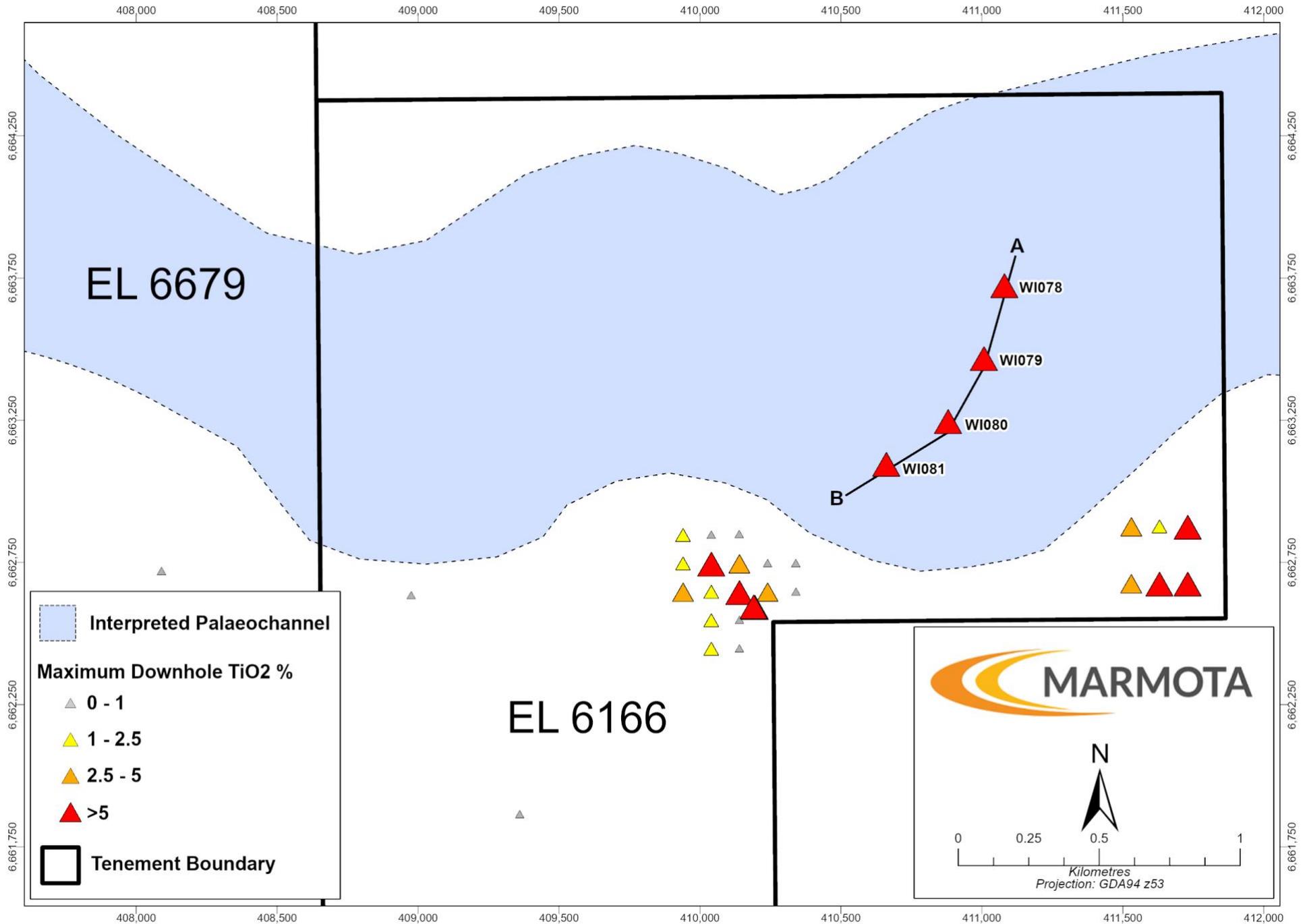


Figure 1: Palaeochannel interpretation over the regional area of Marmota's Titanium Discovery on EL 6166 (Muckanippie) and Petratherm's Titanium discovery, and adjacent MEU tenements

- The Marmota tenements hosting the palaeochannel identified by the Geological Survey of South Australia GP2 project bookends both sides of Petratherm's (PTR) recent titanium discovery [ASX:PTR 11 Sept 2024] and Marmota's titanium discovery [ASX:MEU 13 Nov 2024], both at Muckanippie.
- Marmota holds approximately 28km (in length) of the highly prospective titanium-bearing palaeochannel on its tenements. Of the 28km, approximately 10km (in length) lies within Marmota's tenements to the west, and approximately 18km (in length) lies within Marmota's tenements to the east.
- The palaeochannel is interpreted to be up to ~ 5km in width over MEU tenements, as defined by the Geological Survey of South Australia GP2 project.
- The bends of the palaeochannel are particularly considered highly prospective for concentration of **heavy minerals concentrate** ('HMC') due to heavy minerals being deposited where the fluvial system has changed speed, such as in a depression or at a bend.

Figure Overview

- **Figure 1** provides a **regional view** of the titanium discovery with the interpreted palaeochannel which transects Marmota's Titanium Discovery on Muckanippie (EL 6166) and Marmota's broader tenement package. The palaeochannel interpretation also bookends Petratherm's titanium discovery.
- **Figure 2** provides a **detailed view** of the palaeochannel and Marmota's titanium discovery.
- **Figure 3** shows the Marmota discovery holes **viewed by a drone** from the air.
- **Figure 4** provides a **cross-section** of the 4 MEU discovery holes showing **excellent geological continuity**.
- **Figure 5** shows the **location of the titanium discoveries** relative to rail lines and Marmota's tenements.



Page 4 **Figure 2: DETAIL VIEW: Palaeochannel interpretation over Marmota's Titanium Discovery on EL 6166 (Muckanippie)**

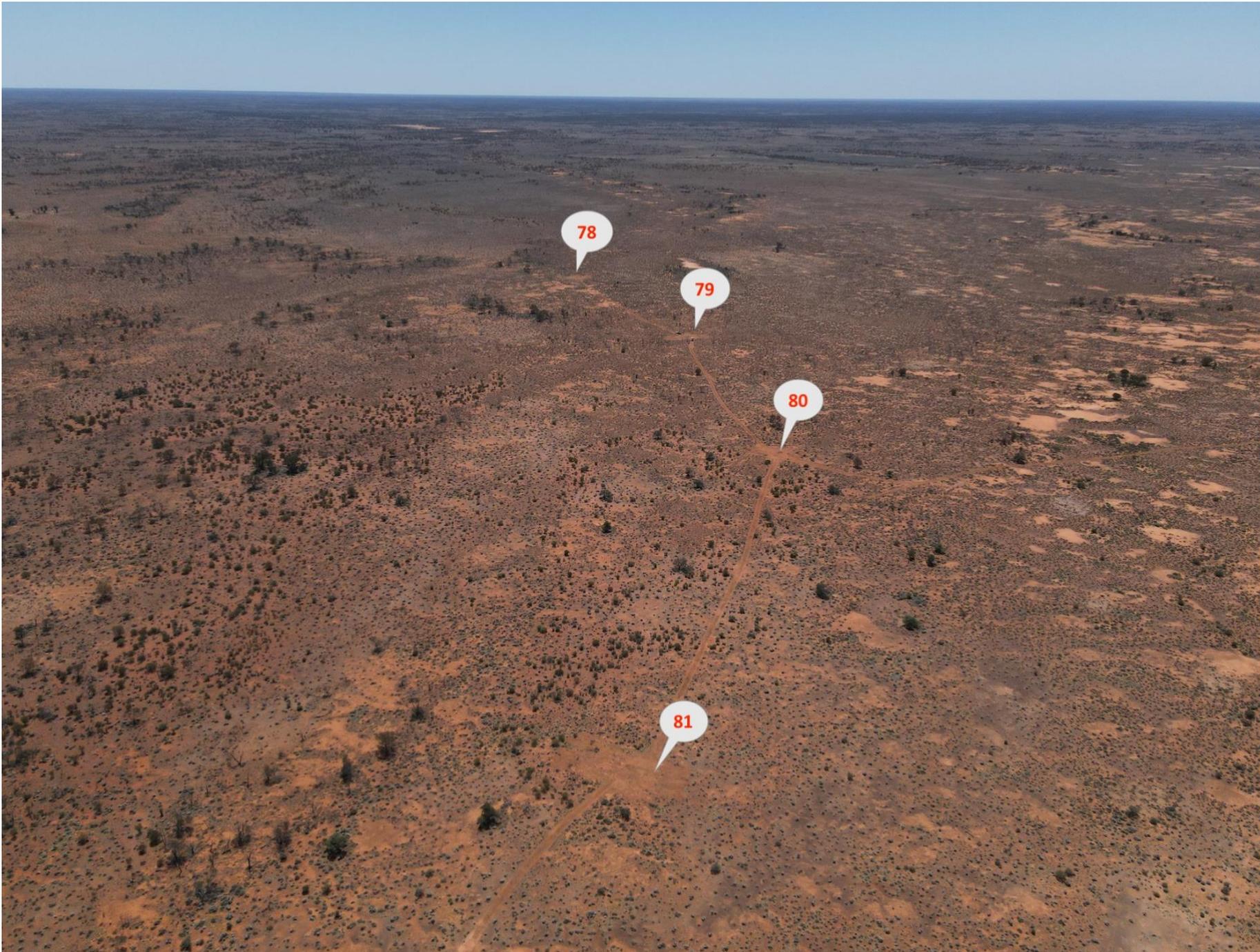


Figure 3: Titanium discovery holes WI-078 to WI-081 (aerial drone view)

Key Points

- The interpreted palaeochannel passes through both the new MEU titanium discovery [ASX:MEU 13 Nov 2024] and the new PTR titanium discovery [ASX:PTR 11 Sept 2024].

- **Every discovery hole within the MEU discovery fenceline ‘A to B’** [see Fig. 1] intersected **exceptional rich thick Titanium Dioxide** (TiO₂):

28m @ 10.1 % TiO ₂	from 0m (from surface)	[Hole WI-081]	[incl 4m @ 13.3 %]
36m @ 6.2 % TiO ₂	from 0m (from surface)	[Hole WI-080]	[incl 4m @ 10.8 %]
39m @ 4.6 % TiO ₂	from 0m (from surface)	[Hole WI-079]	
24m @ 7.5 % TiO ₂	from 0m (from surface)	[Hole WI-078]	[incl 4m @ 10.3 %]

- **The rich thick titanium intersections commence essentially from surface.**
- The discovery is **open in all directions**, including at depth.
- Discovery features exceptional **TiO₂ grades over 10%** [ASX:MEU 13 Nov 2024].
- The titanium discovery is **located close to transport infrastructure**, adjacent to both the Adelaide to Darwin rail line, and the Adelaide to Perth rail line [see Fig. 5].
- The interpreted palaeochannel also passes through the new Petratherm titanium discovery, featuring their best published TiO₂ results:

- CAR 39 – **20m @ 4.2% TiO₂** from 4m, including **4m @ 9.1% TiO₂** from 4m
- CAR 38 – **36m @ 4.0% TiO₂** from 0m, including **6m @ 7.8% TiO₂** from 8m

Best Petratherm titanium assay results

Source: ASX:PTR 11 Sept 2024

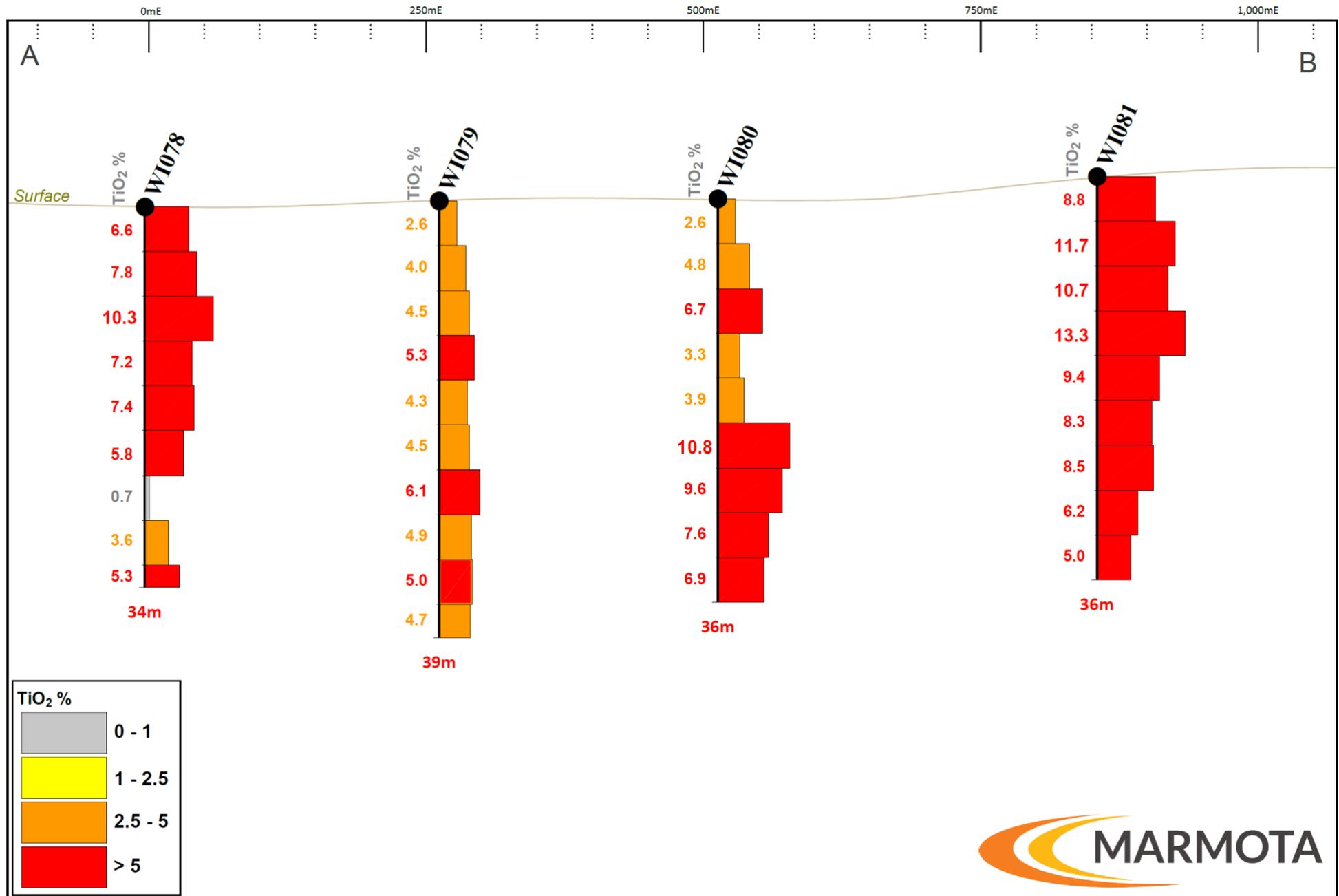


Figure 4: Cross-section through MEU Titanium Discovery Holes: Hole 78 (NE) to Hole 81 (SW)
 [see line A to B in **Figure 2**]

About Titanium

Geoscience Australia defines **heavy mineral sands** as originally derived from igneous (*e.g.* granite, basalt) or metamorphic (*e.g.* schist) rocks that have been broken down by natural weathering processes, transported in fluvial systems and eventually deposited in placer deposits.

Titanium dioxide is a naturally occurring oxide sourced from ilmenite, rutile and anatase: ilmenite is the most important feedstock in the production of titanium dioxide (TiO₂) and rutile is the most valuable.

Titanium is on Australia's national critical mineral list as well as the critical mineral lists of major trading partners including the US, the EU, India, Japan and South Korea, in part due to its use in electric vehicles, wind technology, battery storage, modern technologies, and national security. Titanium is also one of only 12 minerals included in the latest December 2024 NATO List of Defence Critical Raw Materials. ⁵

Applications

Titanium dioxide is a very white and opaque compound that reflects 96% of light and absorbs ultraviolet rays. It is thus a core ingredient in products like paint, sunscreen, cosmetics, plastics, automotive coatings and protective coatings.

It features high strength, light weight and resistance to corrosion, and so performs when metal has to perform in extremely hot environments (like airplane engines), in extremely cold environments (like outer space) and in extremely corrosive environments (like seawater), and thus its use in aerospace, defence, medical and architectural applications. Titanium dioxide boosts the efficiency and durability of photovoltaic cells in solar panels for renewable energy infrastructure. Sodium titanate batteries are the subject of intense development due to their safety, financial and environmental benefits over lithium-ion batteries.

Rio Tinto state:

“... because it's lightweight, titanium dioxide can also help reduce fuel consumption, letting planes and cars go farther with less impact on our environment. These same properties are lending it to new applications that reduce carbon emissions – like paint used on buildings to reflect heat and reduce air conditioning energy consumption, and battery and solar technology.” ⁶

Geological Setting

- The newly identified titanium-bearing palaeochannel forms part of a mesozoic palaeodrainage system on the south-west margin of the Eromanga Basin.
- As summarised in Hou *et al* (2023)³, the Eromanga Basin can be divided into three sequences: lower non-marine, middle marine and upper non-marine.
- The Muckanippie project area sits within the south-western margin of the Eromanga Basin. Palynology^{1,2,3} within the project area has indicated a marginal marine setting with associated fluvial and estuarine environments.
- Excellent work by the Geological Survey of South Australia GP2 Program^{1,2,3} has also indicated that both the Bulldog Shale and Cadna-owie Formations host potential heavy mineral (HM) bearing units which forms part of the marine shaley intervals of the Eromanga Basin.

Geological and Other References

- ¹ Department of Energy and Mining: <https://www.energymining.sa.gov.au/industry/geological-survey/gssa-projects/gp2-next-generation-mineral-systems-mapping>
- ² Hou B., Cubitt C., Petts A., Krapf C. and Irvine J. (2024), *Paleovalley sand sedimentary characteristics of the northwestern Gawler Craton*, Geological Survey of South Australia, 28 November 2024.
- ³ Hou B., Petts A., Krapf C., Irvine J., Stoian L., Heath P., Reed G. and Foss C. (2023), *Remapping the paleovalley systems of the central-western Gawler Craton*, South Australia, Report Book 2023/00043. Department for Energy and Mining South Australia, Adelaide.
- ⁴ Department of Energy and Mining (SARIG): <https://map.sarig.sa.gov.au>
- ⁵ NATO (11 Dec 2024): List of NATO Defence Critical Raw Materials: https://www.nato.int/cps/en/natohq/news_231765.htm
- ⁶ Rio Tinto: <https://www.riotinto.com/en/products/titanium-dioxide>

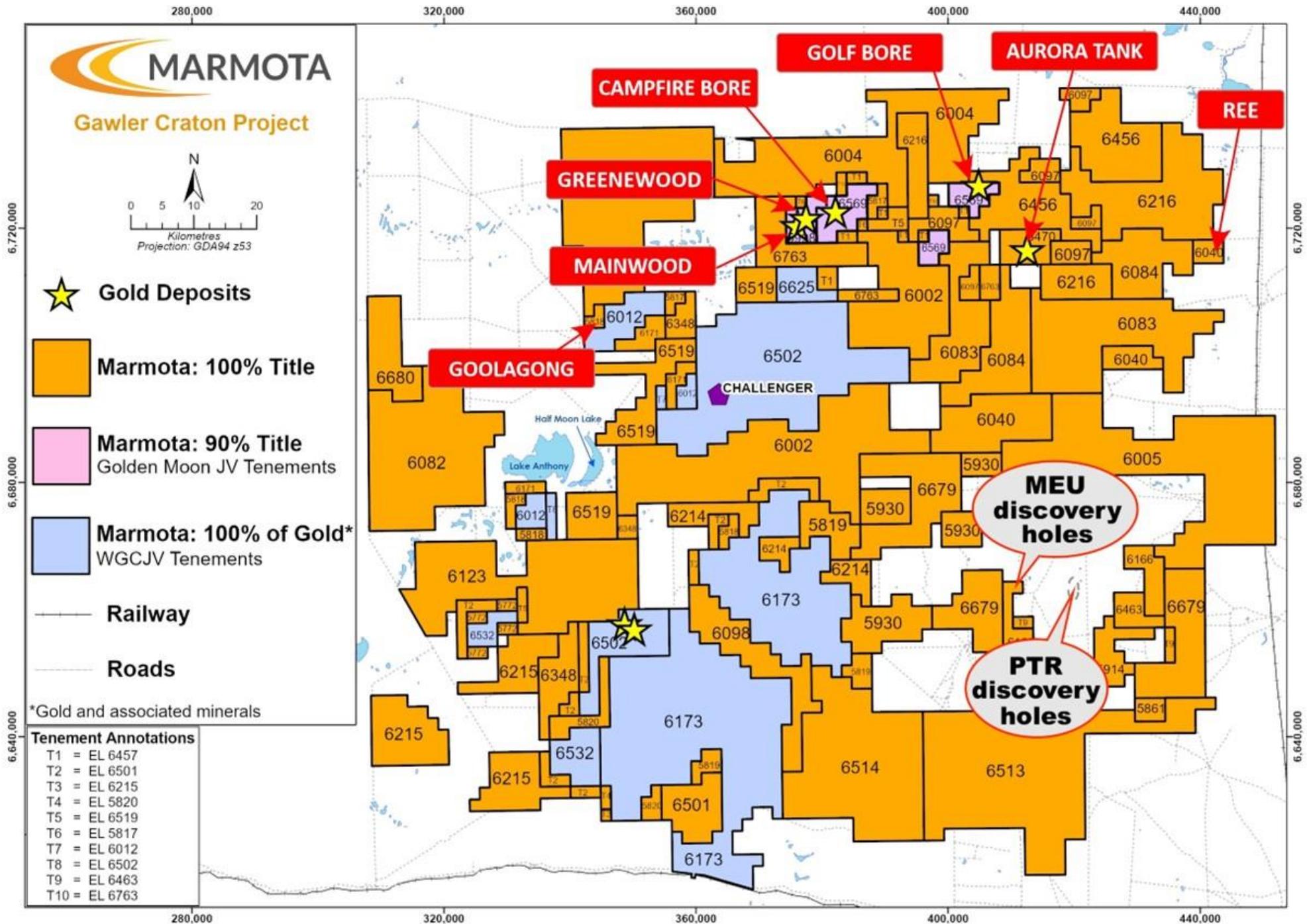


Figure 5: Location of Titanium discovery on Marmota’s Muckanippie tenement EL 6166

Follow Marmota on X at: [X.com/MarmotaLimited](https://x.com/MarmotaLimited)

For further information, please contact:

Marmota Limited

Dr Colin Rose Executive Chairman

Email: colin@marmota.com.au

Unit 6

79-81 Brighton Road

Glenelg SA 5045

ABN: 38 119 270 816

T: (08) 8294 0899

www.marmota.com.au

About Marmota Limited

Marmota Limited (ASX:MEU) is a South Australian mining exploration company focused on gold and uranium. Gold exploration is centred on the Company's gold discovery at Aurora Tank that is yielding outstanding intersections in the highly prospective and significantly underexplored Gawler Craton in the Woomera Prohibited Defence Area.

The Company's flagship uranium resource is at Junction Dam adjacent to the Honeymoon mine.

For more information, please visit: www.marmota.com.au

Competent Persons Statement

Information in this Release relating to Exploration Results is based on information compiled by Aaron Brown, who is a Member of The Australian Institute of Geoscientists and Executive Director of Exploration at Marmota. He has sufficient experience relevant to the styles of mineralisation and types of deposits under consideration and to the activities being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code of Reporting of Exploration Results, Mineral Resources and Ore Reserves." Mr Brown consents to the inclusion in this report of the matters based on this information in the form and context in which they appear.

Where results from previous announcements are quoted, Marmota confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcement and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

For the purpose of ASX Listing Rule 15.5, the Board has authorised for this announcement to be released.