



TERRAIN MINERALS

# 2023 Exploration Update Gold, Lithium, Gallium & Rare Earths

Exploration to support new & emerging technologies

**Smokebush:** MMI soils and drilling completed – Assay results pending

**Lort River:** Drilling completed – Assay results pending

Investment Presentation – Right issue, now open.

Closing 5pm WST, Tuesday 24th October 2023 (eligible shareholders only)

ASX:TMX | OCTOBER 2023





# Important Information

## Forward Looking Statements

This presentation has been prepared by Terrain Minerals Ltd (“Terrain”, “the Company”) as a summary of the Company, its mineral assets & its plans to explore its tenements & for general information purposes only. This presentation contains material that can be construed as forward looking statements. This presentation is not & should not be considered as an offer or invitation to subscribe for or purchase any securities in Terrain, or as an inducement to make an offer or invitation with respect to those securities. No agreement to subscribe for securities in Terrain will be entered into on the basis of this presentation.

Terrain disclaims any intent or obligation to update any material which constitutes forward looking statements, whether as a result of new information, future events, results, or otherwise. All forward looking statements should be treated with caution. Potential investors are cautioned that forward looking statements are not guarantees of future performance & therefore, should not put undue reliance on such statements.

Due care & attention has been taken into preparation of this presentation. To the fullest extent permitted by law, no liability, however arising, will be accepted by Terrain or its directors, officers or advisers, for the fairness, accuracy or completeness, of the information contained in this presentation. This presentation contains certain forward-looking statements which have not been based solely on historical facts but, rather, on Terrain’s current expectations about future events & on a number of assumptions which are subject to significant uncertainties & contingencies, many of which are outside the control of Terrain & its directors, officers & advisers. Information is only current at the date of issue of the presentation.

## Compliance Statement

The Company notes that within the announcement all the information is referenced directly to the relevant original ASX market releases of that technical data.

Terrain would like to confirm to readers 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 the 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.

## Competent Persons Statement

The information in this report that relates to Exploration Results are based on information compiled by Mr. Xavier Braud, who is a Member of the Australian Institute of Geoscientists and is a member of the board of Terrain Minerals Ltd. Mr Braud is a shareholder and options holder of Terrain Minerals Ltd. Mr Braud has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity 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’. Mr. Braud consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

# Company Profile

## Capital Structure

Shares on Issue: 1,257 Million

### Unlisted Options

(@ \$0.0065 – \$0.0214): 35 Million  
Various expiry dates to 2028

(@\$0.009 & \$0.015): 87.22 Million  
Expiry: Half each at 20 Jan & 20 May 2023

Market Cap (Million): 6.1

Cash at Hand (Million): 1.2\*

Share Price: \$0.005  
Share price at 5 Oct 2023

## Major Shareholders

Top 20: 40%

Top 100: 71%

Board & Associated: 13%

No. of Shareholders: 1,184

\* As of September 2023





# Board Members



## **Justin Virgin** Executive Director

Mr Virgin has over eleven years' experience as an ASX Director of listed exploration companies as well as sixteen years of experience in the financial services and securities industry with expertise in providing a wide range of financial services which includes capital raisings, promotion, providing general corporate advice listed small-cap companies and other investment advice involved in negotiations, mergers, acquisitions and valuations. Mr Virgin also has over ten years of onsite mining experience operating in remote and isolated sites throughout Western Australia and Northern Territory on site. His experience covers project acquisition and sale negotiations, mine closures and rehabilitation work as well as extensive preventative maintenance planning and execution on onsite mobile fleet and of exploration program.

## **Xavier Braud** Non-Executive Director – Geology

Mr Braud is an experienced geologist and mining analyst with over eighteen years' experience in a broad range of deposits and commodities. His geological experience spans the whole spectrum of geology from greenfield exploration to resource definition and extension. Up until January 2023 Mr Braud was the CEO of ASX listed Benz Mining, spearheading the discovery of multiple new high grade gold zones at the Eastmain project in Quebec. During the same period, he also served on the board of another ASX listed company where he actively participated in Riversgold's transition and currently holds a position at Crown Metals Limited as MD. For the three years prior, Mr Braud was a Resources/Mining Analyst at Patersons Securities and at Canaccord Genuity covering ASX listed junior resources companies. This role involved researching companies at both technical and financial level with an emphasis on identifying companies with true discovery potential. Mr Braud is a member of the Australian Institute of Geoscientists.

## **Johannes Lin** Non-Executive Director

Mr Lin has seven years of management experience as an entrepreneur and Principal/Managing Director of Oprian Investments Pte Ltd with interests and focus in minerals and properties/property construction of Pasir Ria Apartments in Singapore and investment team member of Monarch Parksuites Condominium in Manila Philippines. Past experience includes corporate restructuring as member of advisory team in the restructuring of Singapore listed Enzer Holdings Limited where series of debt negotiations, debt buy-out, capital raising by placements, rights issues, debt to equity conversion and eventual takeover by a marine group successfully. He holds a Bachelor of Commerce, Finance and Accounting from University of Western Australia and has been a long-term investor in Terrain Minerals Limited.





# Why Terrain Minerals?

## Multiple exploration campaigns currently underway

Two Drilling Campaigns completed in June/July 2023 at Smokebush project (100% owned), Targeting Multiple Strategic Commodities.

Drilling tested ~6 pegmatite for Lithium & 6 Gold IP targets hidden undercover – **Assay results pending – Due late October 23.**

Maiden Drill program completed August 2023 at Lort River (100% owned) Testing for Ionic Clay Rare Earth (REE) – **Assay results pending – Due late October 23.**

All tenements within regions known to host substantial mineral deposits with access to world class mining services.

Pursuing "future-facing", high demand critical commodities that support new technologies & advanced electronics.

Rare earths mineralisation, multiple potential Lithium bearing pegmatites, gold, gallium & emerging copper/nickel targets confirmed across the Company's project areas.

Targeting a potential company-making discovery in 2023.

There are 1.7 tonnes of rare earths in an average wind turbine.





# Why the emphasis on high value "future-facing" commodities?

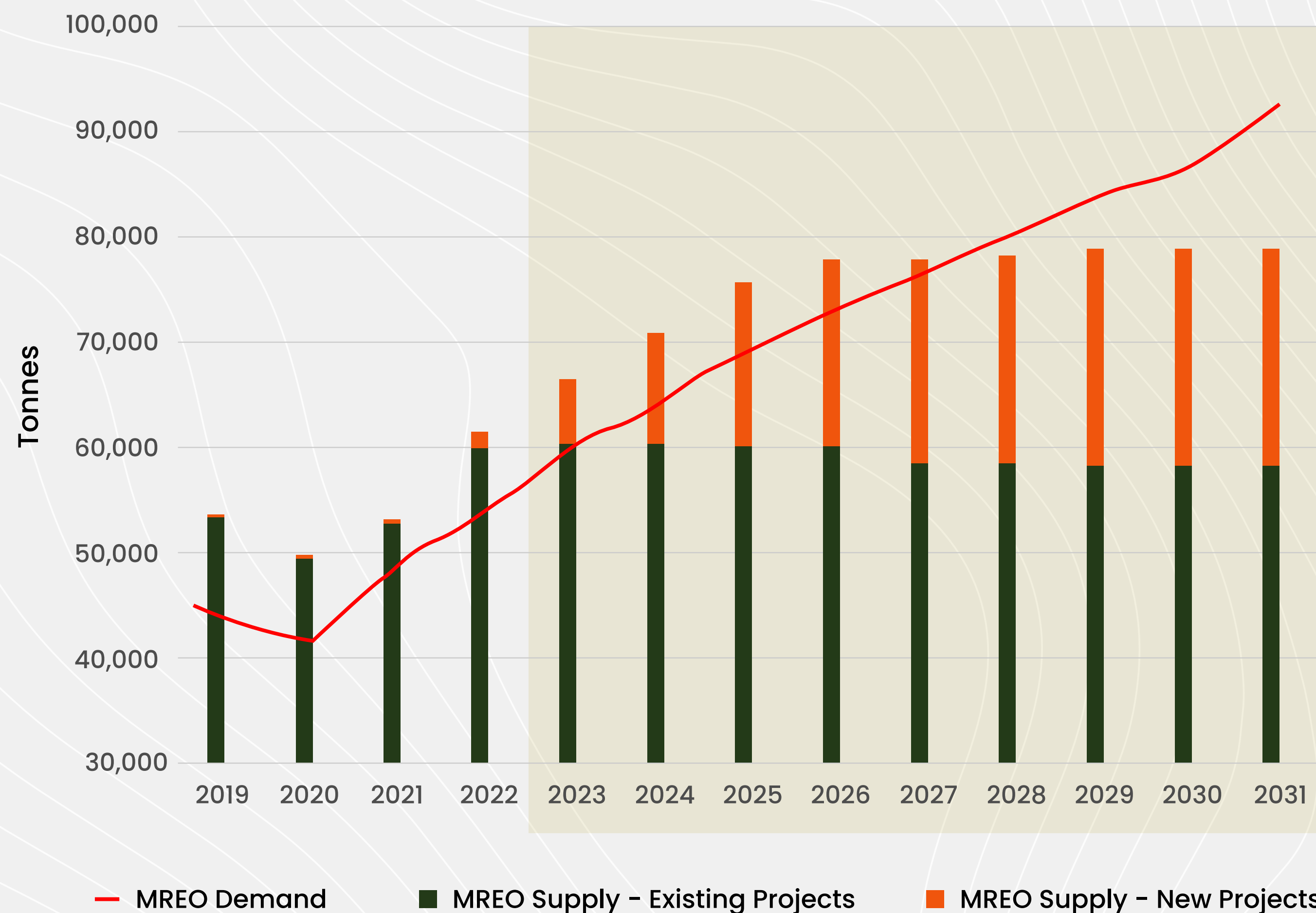
Even if all the planned projects come online and produce as forecast, there will likely still be supply deficits in key "future-facing" commodities such as lithium and rare earths.

That said, Terrain Minerals is aware that maximising the speed to production is crucial to likewise maximizing shareholder return.

With strong and sustained tail winds behind the lithium and rare earths sectors, Terrain Minerals is committed to implementing a major exploration and drilling campaign across its portfolio of projects in 2023.

The ultimate objective is a company-making discovery and maiden mineral Resource within the coming 12 months.

Magnet Rare Earth Oxide (MREO) Supply vs Demand\*



\* 1 Argus, "Rare Earth Analytics", Report, April 2022.





TERRAIN MINERALS

Gold





## OUR PROJECTS

# Smokebush | Gold Project

Historic exploration focused on areas of outcrop or minimal cover.

Significant potential for bedrock-hosted gold mineralisation beneath barren transported cover Identified.

Successful IP survey identified 4 “under cover” sulphide targets all within the proximity of historic drilling; Monza, T13, Paradise City & Hurley.

IP Targets drill tested.

Assay results pending - Due late October 2023.

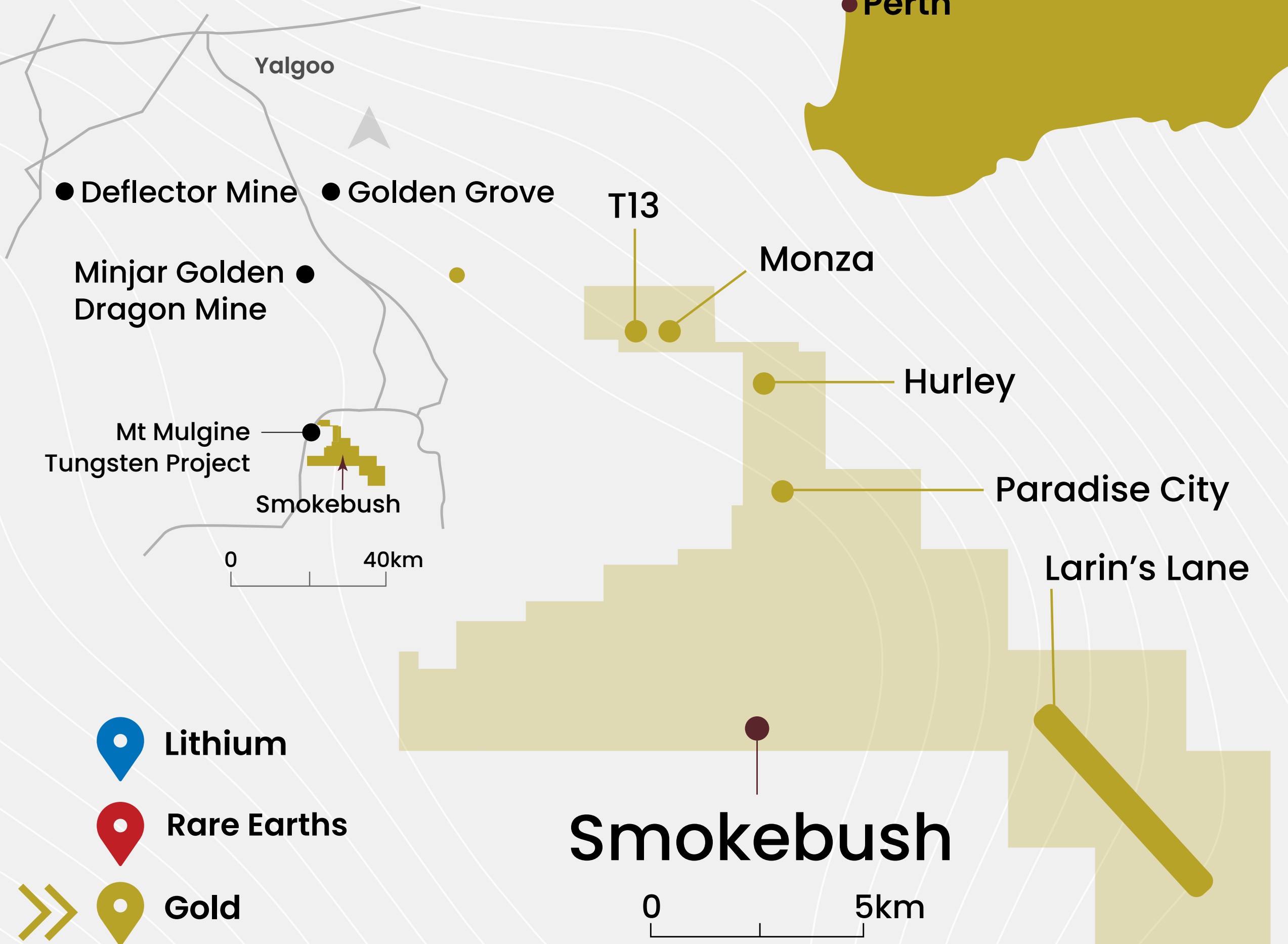
### Larin's Lane

4km long and 300m-400m wide Magnetic “high” feature located within an interpreted structural corridor of archean greenstones interpreted from regional magnetics pinched between monzogranite units.

Mobile Metal Ions (MMI) 9km2 extension program completed.

Assay results pending - Due early October 2023.

 **100%**  
OWNERSHIP





## OUR PROJECTS

# Smokebush | Gold Project | IP targets

6 RC holes drilled for ~700m targeting IP anomalies all successfully intercepting sulphides (pyrite) spatially related to modelled geophysics – **Assay results pending – Due late October 2023.**

North to northeast trending shear zones are the interpreted control of gold mineralisation across the Smokebush region of the Yalgoo Mineral Field & successfully mapped using IP geophysics.

Four (4) north to northeast-trending shear zones have been mapped within the Company's Smokebush Project & now all drill tested.

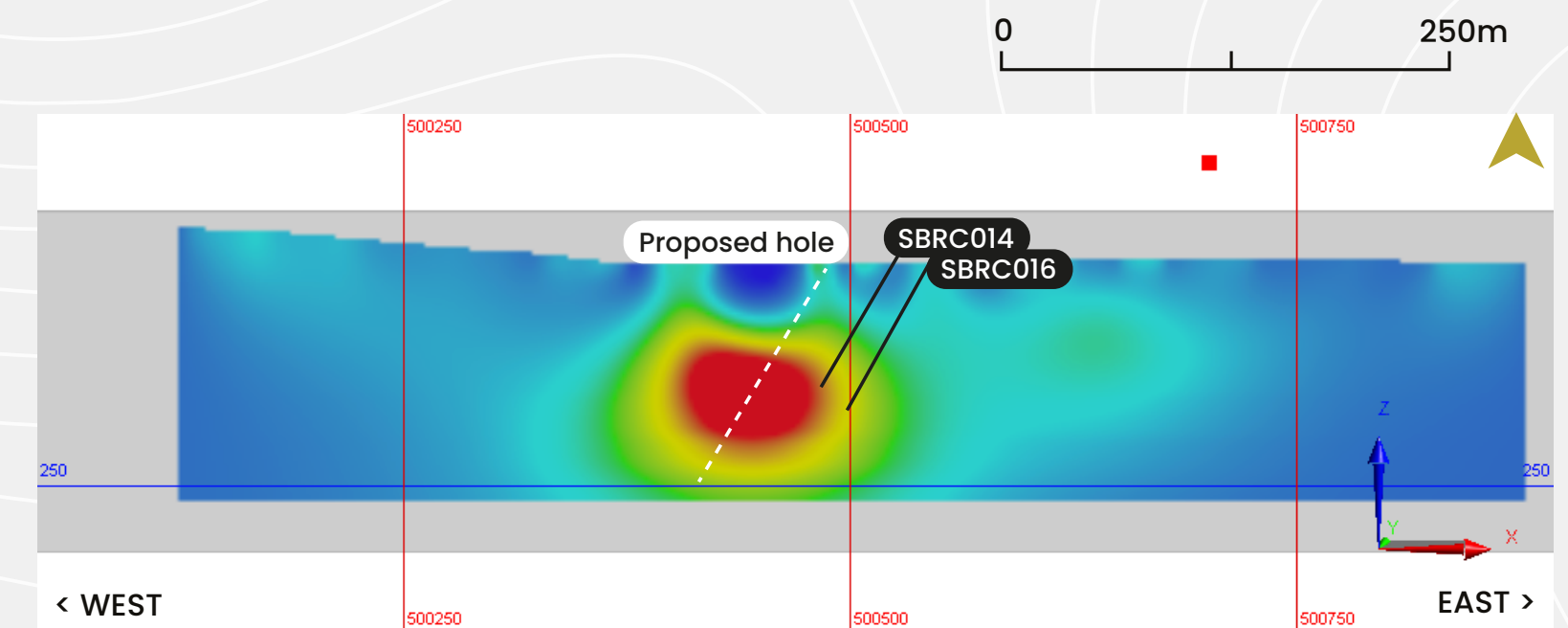
Induced polarisation (IP) geophysical surveys across three of these shear zones at Smokebush returned encouraging chargeability anomalies.

Previous drilling by Terrain, whilst intersecting gold mineralisation, now appears to have missed the newly interpreted main mineralisation zones by 50m to 300m and sit in an interpreted "Halo" zone.

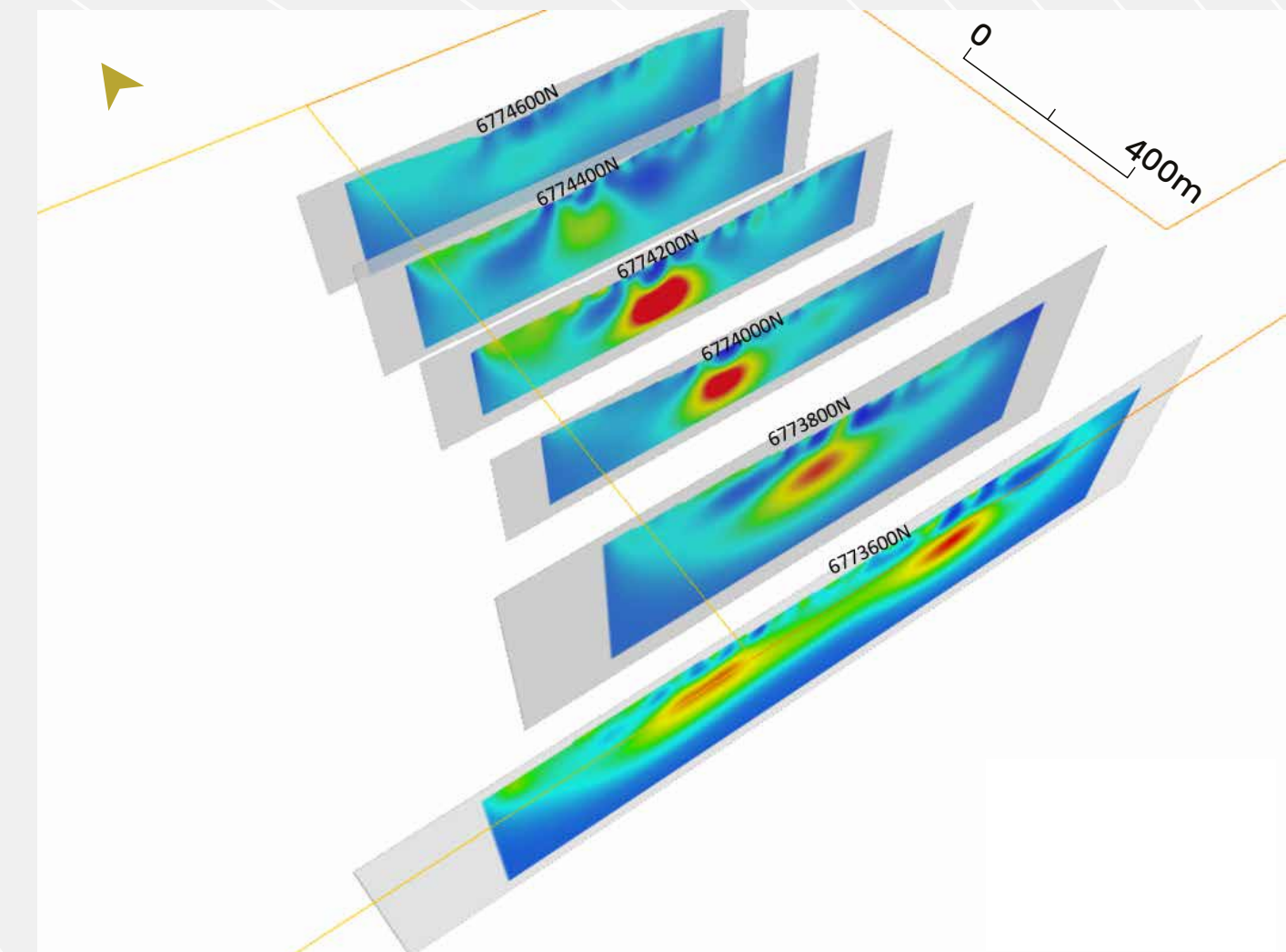
### Example of Monza Halo intersections

(refer to diagram):

- 4m @ 4.46 g/t Au from 51m SBRC003
- 7m @ 2.72 g/t Au from 25m SBRC005
- 6m @ 2.12 g/t Au from 80m SBRC011



**Diagram above:** Two-dimensional (2D) inversion chargeability sections on 6774000N looking north with Terrain's 2020/21 Monza drill holes superimposed, which appear to have been drilled 50m away from the newly defined IP anomaly. Proposed drillhole shown in white.



**Diagram above:** New identified 600m long chargeability Anomaly identified parallel to historic Monza drilling.

\* Refer to ASX release: 22 May 2023 600-metre-long chargeability anomaly identified parallel to Monza Gold prospect, Smokebush Project, 19 July 2021 – Positive First Pass Drilling Results Smokebush 26 July 2023 – Smokebush "Phase 2" Drilling completed & Project Update.

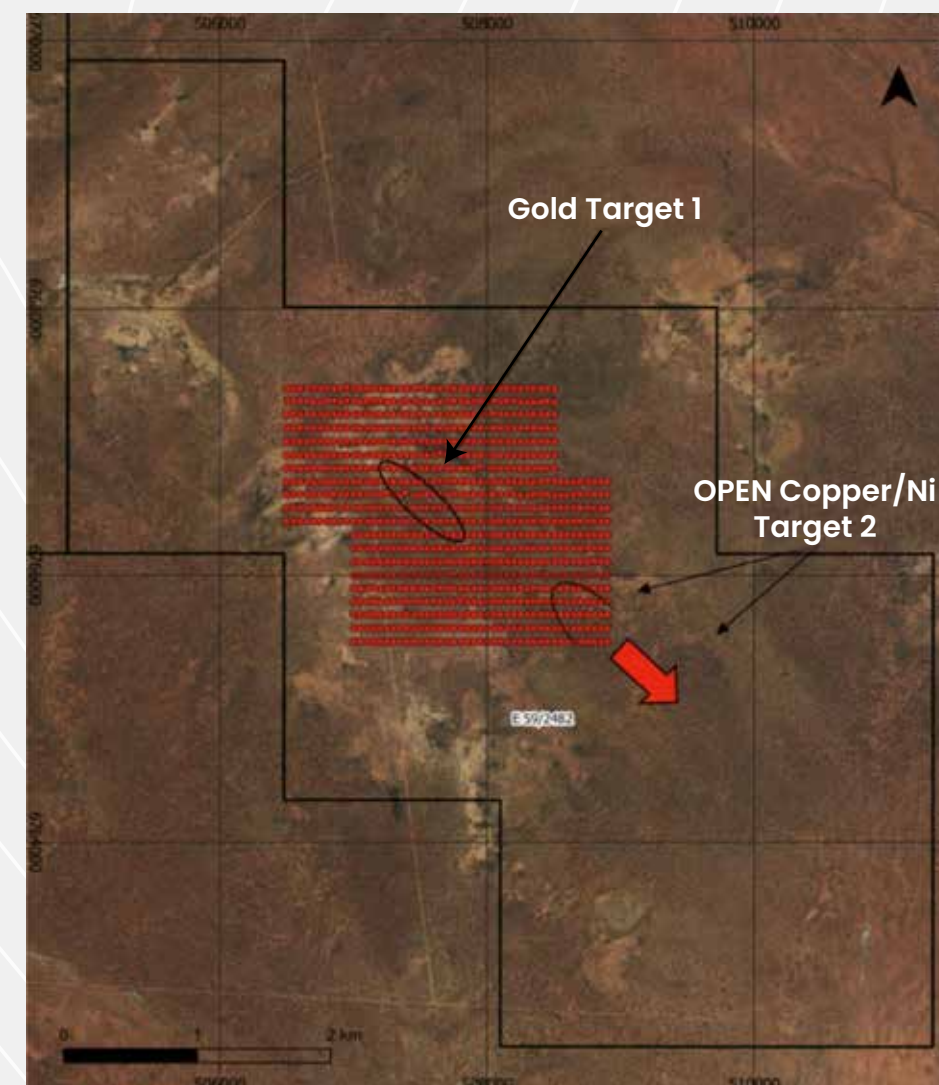


## OUR PROJECTS

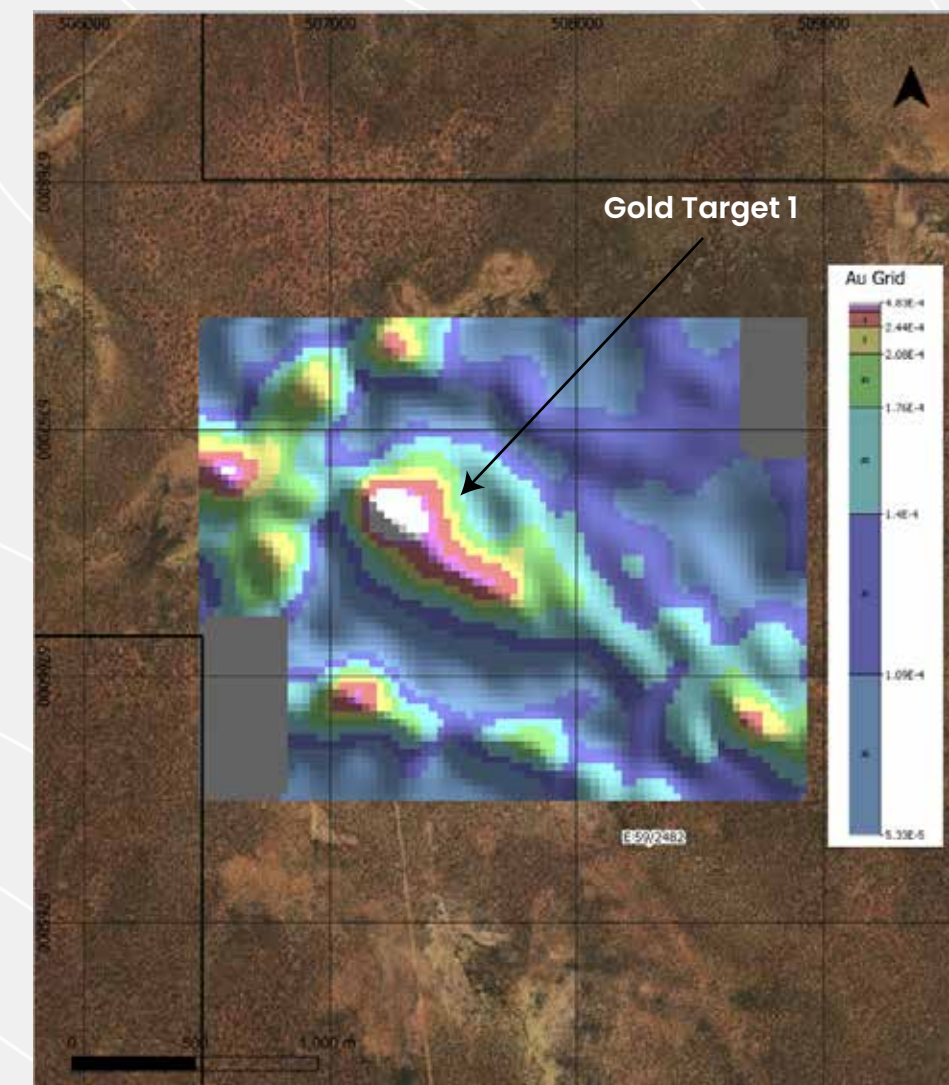
# Smokebush | Gold Project | Larin's Lane

Highly Successful Mobile Metal Ions (MMI) Soils program (834 samples taken).

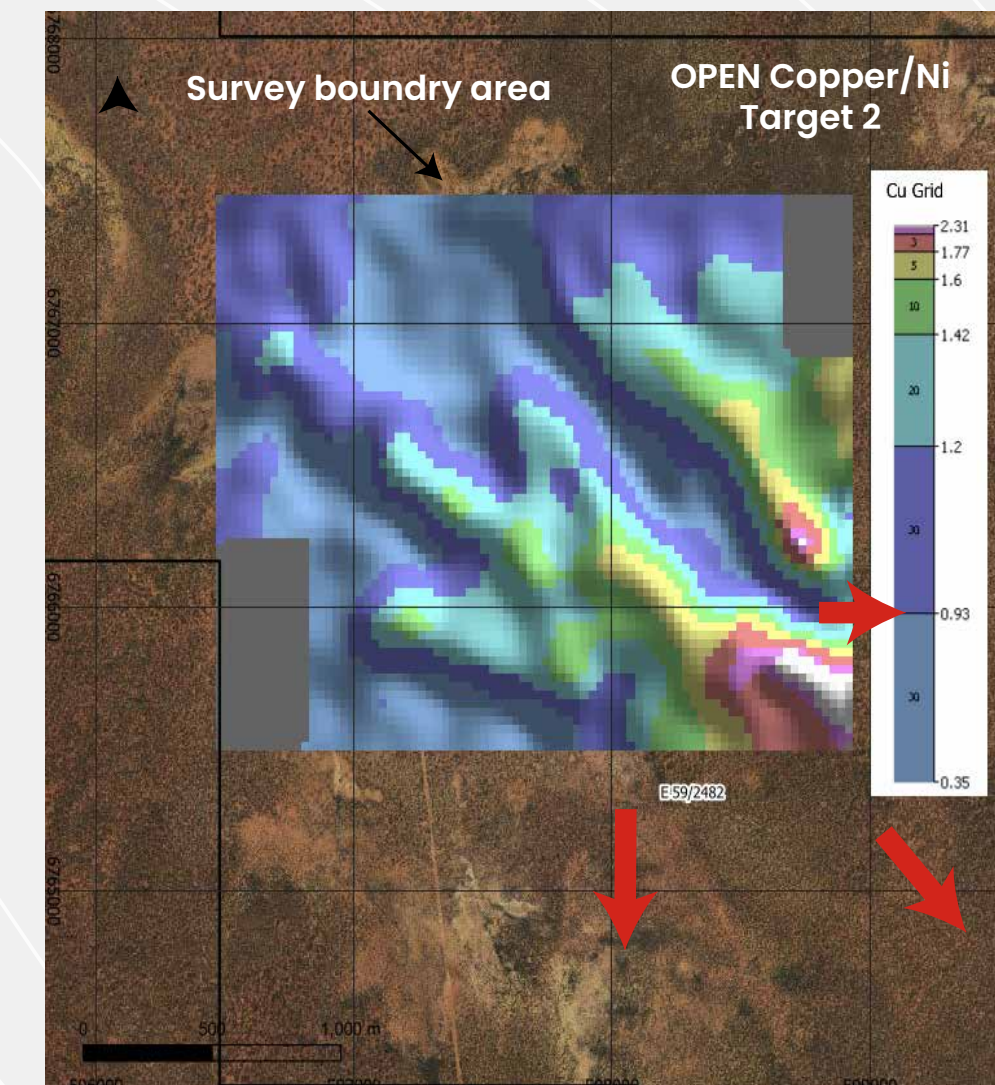
- Large New Gold Anomaly - ~700m by ~250m (Diagram 2).
- "Open" Copper (Cu) with associated Nickel (Ni) anomaly ~600m by ~350m open towards the S/E (Diagram 3).
- MMI - 9km<sup>2</sup> extension program completed. Cu/Ni anomaly - (900 samples taken) - **Assay results pending - Due early October 2023.**
- Newly identified anomalies within similar geological setting to Golden Grove.
- Planning for drill testing of gold and Cu/Ni targets once boundaries defined - Targeting October 2023 start date.



**Diagram 1**  
MMI program coverage area.



**Diagram 2**  
MMI Gold anomaly 700m by 250m which is now ready for air-core drill testing.



**Diagram 3**  
Copper with associated Nickel anomaly S/E corner. Red arrows indicative of potential extension area and target for the MMI extension program.







TERRAIN MINERALS

# Lithium

Approximately 8 kilograms of Lithium is needed for a single Electric Vehicle.

● Carlindie

WESTERN  
AUSTRALIA

● Smokebush



## OUR PROJECTS



# Smokebush | Lithium Project

Located 350 kilometres North of Perth,  
Western Australia.

- Six pegmatites drill tested (RC ~700m) completed in July 2023.
- Lithium **assay results pending – Due late October 2023.**
- Northern pegmatites areas identified as being the most prospective, by geological consultants, but discounted due to width's, clearing has exposed true width's up to +20m.
- Additional untested pegmatities located within the favourable greenstone lithology also identified across the project area.

 **100%**  
OWNERSHIP

### KEY

-  Confirmed Pegmatite locations
-  Potential Pegmatite locations

## Smokebush

0 5km

Geraldton



Smokebush

WA

Perth

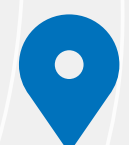
Mt Mulgine  
Tungsten



Monza

Hurley

TERRAIN  
MINERALS'  
TENEMENTS



Lithium



Rare Earths



Gold

\* Refer to ASX release: 19 June 2023 – First phase of RC drilling successfully intersects pegmatites at Smokebush.  
Refer to ASX release: 26 July 2023 – Smokebush – Phase 2 Drilling Completed & Project Update.





TERRAIN MINERALS

# Gallium

Gallium is primarily used in electronics, semi conductors, transistors, LED's and solar panels providing more power and less heat than silicon.

WESTERN  
AUSTRALIA

● Smokebush

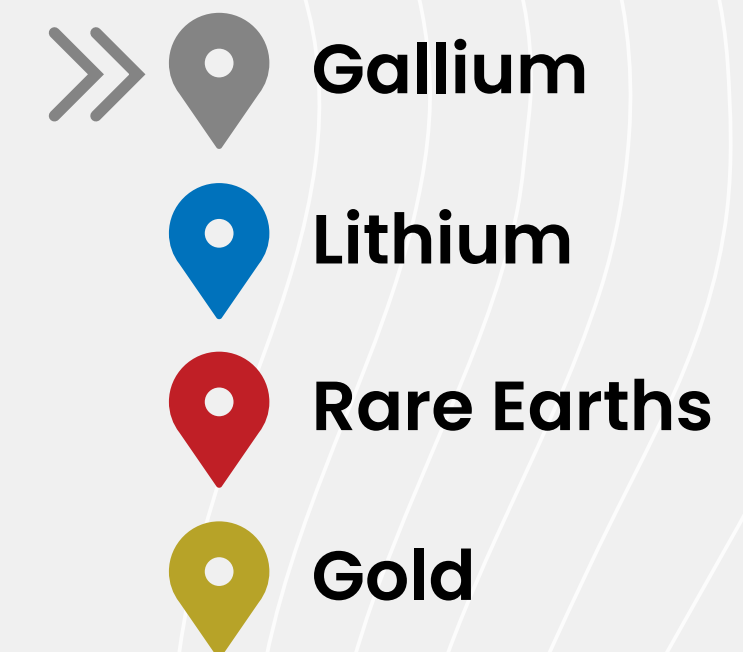


## OUR PROJECTS

# Smokebush | Gallium Project

- Gallium is a critical metal used in the defence industry and computer chip, semi-conductors, transistors, including light emitting diodes (LED) and electronic circuitry.
- On 1 Aug 2023, China which produces 98% of the worlds Gallium cancelled all exports, weaponize supply, highlighting the need to secure safe and reliable supply of critical elements and metals.
- It is anticipated that USA and European semiconductor chip makers will actively seek to establish long term supply contracts with future Gallium suppliers (outside of China), such as Australia.
- Terrain is rapidly expanding its Gallium (and Germanium) focus to dove-tale with the exponential growth of generative AI (and the associated demand for semi-conductors).

Reference: De-risking Gallium Supply Chains The National Security Case for Eroding China's Critical Mineral Dominance By: Matthew P. Funaiolo, Brian Hart, and Aidan Powers-Riggs | August 2023.  
<https://www.csis.org/analysis/de-risking-gallium-supply-chains-national-security-case-eroding-chinas-critical-mineral#:~:text=As%20of%202022%2C%20China%20produced,which%20most%20gallium%20is%20extracted.>





## OUR PROJECTS

# Smokebush | Gallium Project

Gallium ( $\text{Ga}_2\text{O}_3$ ) mineralisation discovered as part of Phase 1 RC drilling, is hosted in four separate mafic units. Three running parallel N/S north of Paradise City and one at Rabbit Warren heading appearing to follow a West to South West structure towards Larin's Lane targets.

### Rabbit Warren Prospect

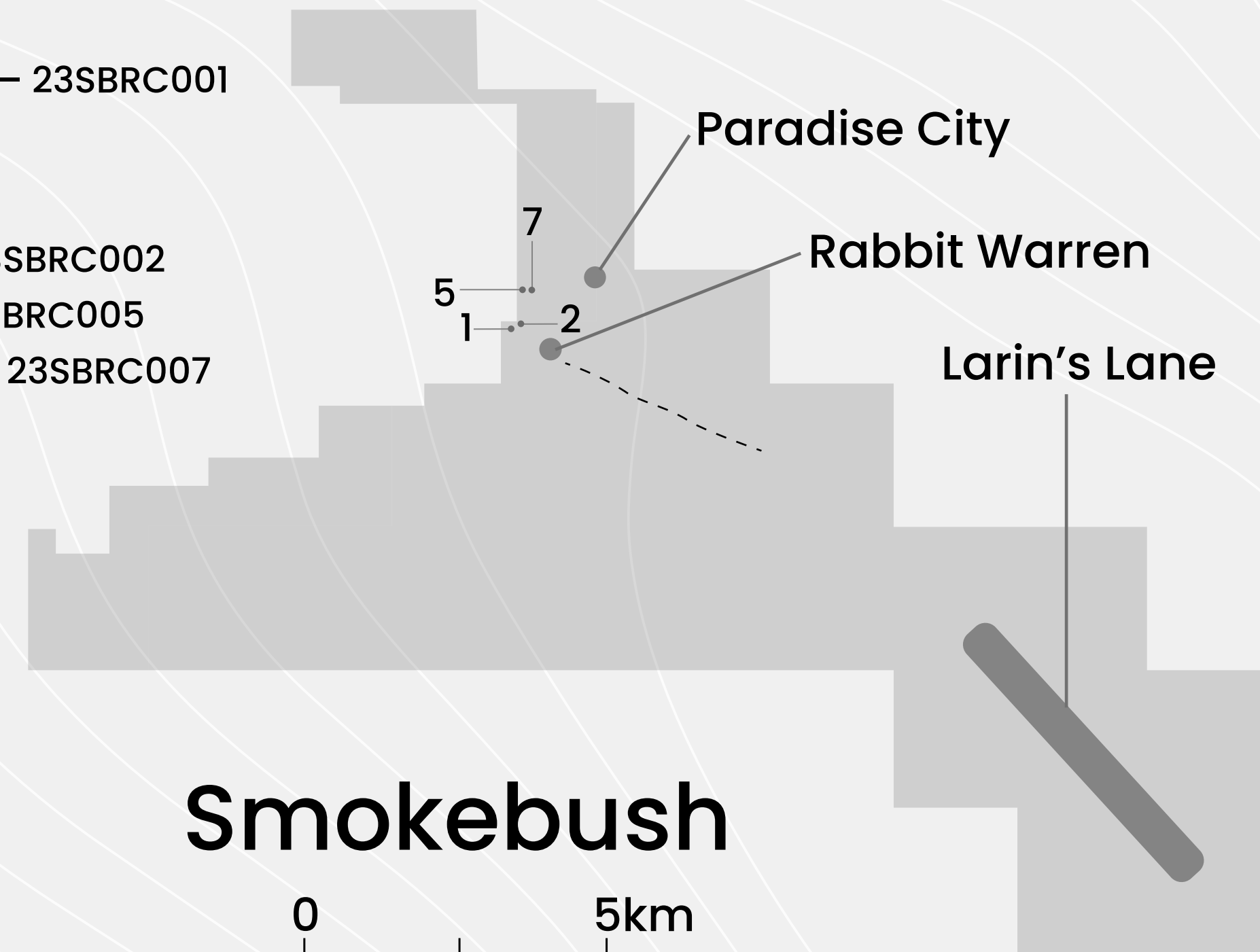
- 10m @ 37.6 g/t  $\text{Ga}_2\text{O}_3$  within 86m @ 17.4 g/t  $\text{Ga}_2\text{O}_3$  from surface – 23SBRC001

### Paradise City Prospect

- 4m @ 28.2 g/t  $\text{Ga}_2\text{O}_3$  within 30m @ 20.1 g/t  $\text{Ga}_2\text{O}_3$  from 80m – 23SBRC002
- 9m @ 30.9 g/t  $\text{Ga}_2\text{O}_3$  within 16m @ 24.1 g/t  $\text{Ga}_2\text{O}_3$  from 11m – 23SBRC005
- 7m @ 30.9 g/t  $\text{Ga}_2\text{O}_3$  within 11m @ 28.2 g/t  $\text{Ga}_2\text{O}_3$  from surface – 23SBRC007



Gallium, 31 GA



 **100%**  
OWNERSHIP

- »  Gallium
-  Lithium
-  Rare Earths
-  Gold

\* Refer to ASX release: 16 August 2023 – Gallium (Ga) Discovered at Smokebush RC drilling campaign.





TERRAIN MINERALS

# Rare Earths

There are 4 tonnes of rare earths in each Virginia-class submarine.

Geo-political tensions are driving the global desire to develop alternative rare earths supply chains to protect manufacturing and defence.

WESTERN  
AUSTRALIA

Mukinbudin

Lort River



OUR PROJECTS

# Lort River | Rare Earths Project

Located 650 kilometres southeast of Perth.

Covers 320 square kilometres of prospective geology.

Immediately adjoins OD6 Metals (ASX:OD6) and Meeka Metals (ASX: MEK) rare earth projects.

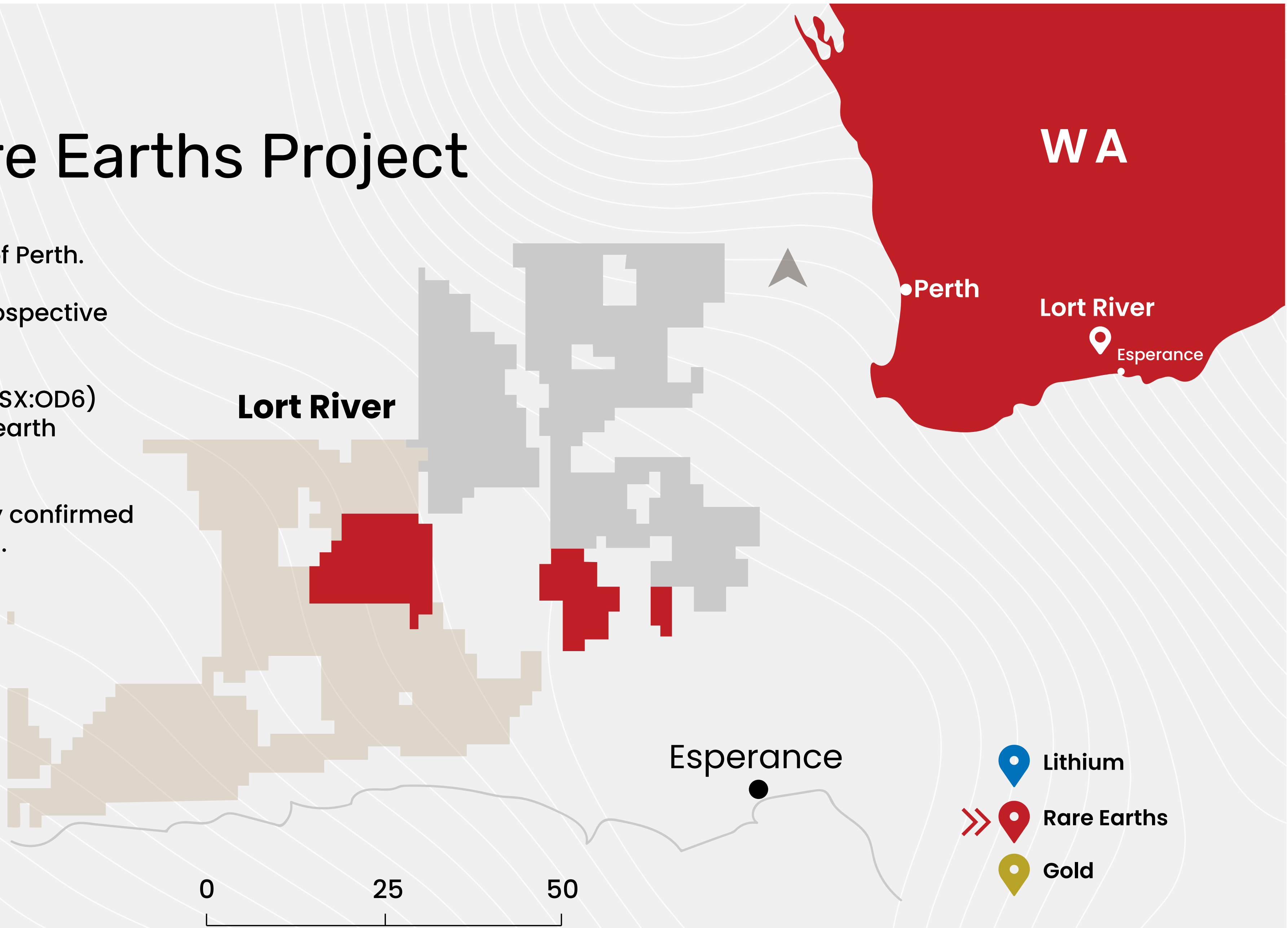
Rare earth mineralisation is already confirmed within Terrain Mineral's project area.

 **Terrain Minerals Ltd** ASX:TMX  
TMX Market Cap \$6.5M

 **OD6 Ltd** ASX:OD6  
OD6 Market Cap \$17M

 **Meeka Gold Ltd** ASX:MEK  
MEK Market Cap \$62M

**100%**  
OWNERSHIP



\* Refer to ASX release: 30 May 2022 – High-Grade Clay Type Rare Earths (REE) Soil Anomaly Identified at Lort River Project.



OUR PROJECTS

# Lort River | Rare Earths Project

Encouraging Total Rare Earth Oxide (TREO) grades returned from historic shallow auger drilling.

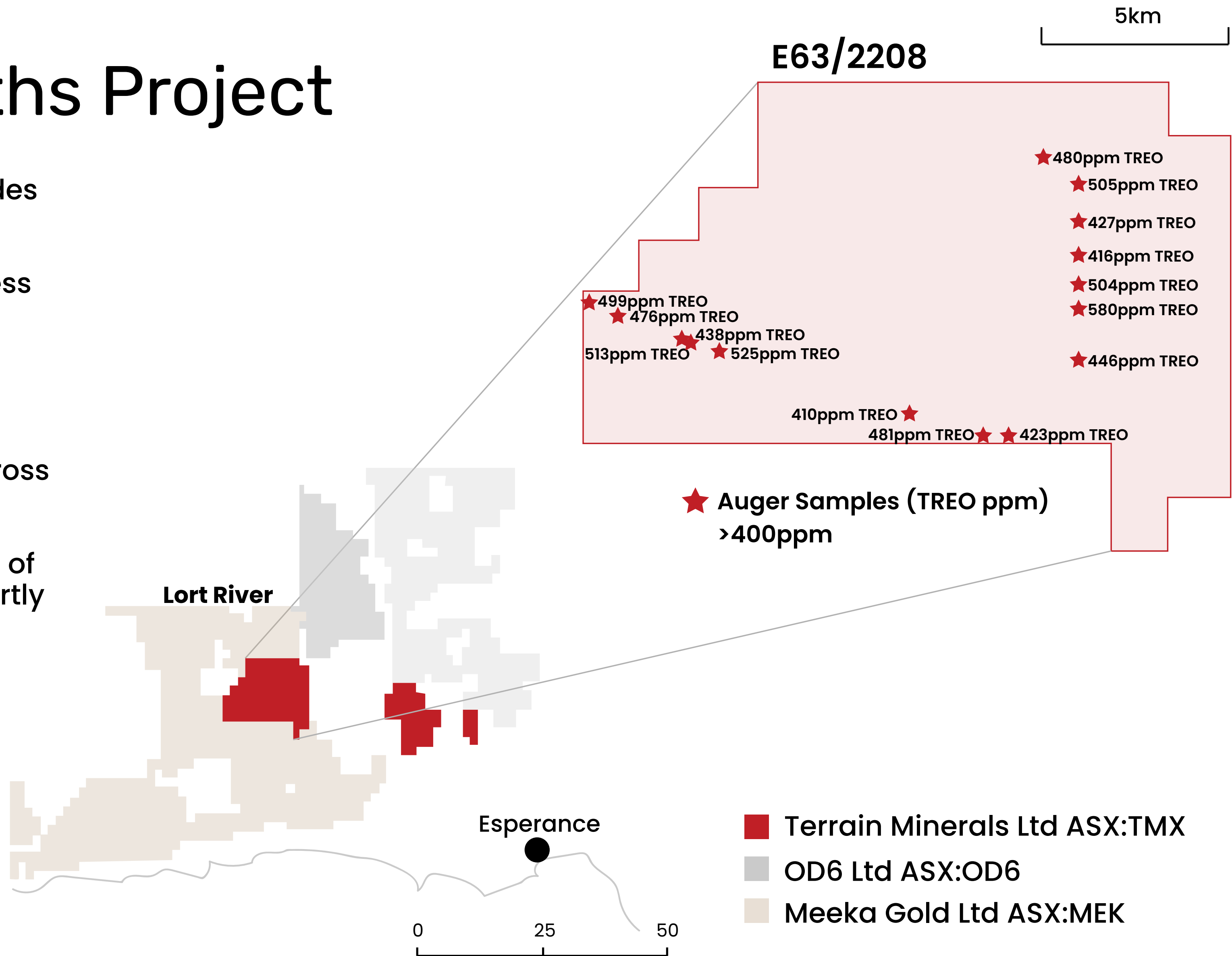
Heritage assessment completed and land access agreements progressing.

Wide-spaced (3 kilometre) drilling program completed in August 2023.

16 drill holes completed along road verges's across the three tenements - **Assay results pending.**

Terrain is part of the Minerals Research Institute of Western Australia. (MRIWA) projects M10500 partly industry funded study on WA REE including metallurgical analysis.

Targeting a Maiden Mineral Resource. Estimate in second half of 2024.



\* Refer to ASX release: 30 05 2022 - High-Grade Clay Type Rare Earths (REE) Soil Anomaly Identified at Lort River Project.



# Project Pipeline

## **Carlindie Prospect – East Pilbara/Lithium** *(applications pending grant, appendix 1)*

- Located 90km from Port Headland & 50km N/E of Pilbara Minerals – Pilgangoora mine.
- Desk top studies underway over the 737km<sup>2</sup> application area.

## **Calcaling Prospect – Mukinbudin Rare Earths Project** *(applications pending grant, appendix 2)*

- Located north of Mukinbudin WA and covering 1,408km<sup>2</sup>.
- Targeting pegmatite-hosted Dysprosium, Neodymium, Terbium and Praseodymium.
- Ultra high resolution airborne and radiometric survey to define pegmatites and define primary controls on mineralisation, anticipated immediately after tenement granted.

## **Biloela Prospect – Queensland/Copper/Gold** *(applications pending grant, appendix 3)*

- Located 40km west of Biloela Qld, north & on strike to Cracow Gold mine and package has 2 historic Copper mines and 7 other known Copper/Gold prospects.
- Area, originally identified by Rio Tinto, Newcrest Mining Ltd & Gold Fields Ltd.

## **Wild Viper Gold Project – Wilsons Arc\*\***

- Located 76km north from Leonora WA & surrounds Red5 Limited (ASX: RED) Great Western Gold mine.
- Rock chip sampling returned positive results including 9.92 g/t gold and 4.67 g/t gold.

\* Refer to ASX release: 21 June 2023 – Terrain Secures 100% ownership of historic Copper Mines next door to Cracow Gold Mine, Queensland.

\*\* Refer to ASX release: 27 March 2019 – Great Western Gold Project Update & New Exploration Program Great Western Gold Project Update & New Exploration Program and 29 June 2020 – Strategic Acquisition at Wildviper Gold Project “The Missing Piece of the Puzzle” & New Targets.





# Planned Work Program\* | 23 + 24

## Lithium Work Program

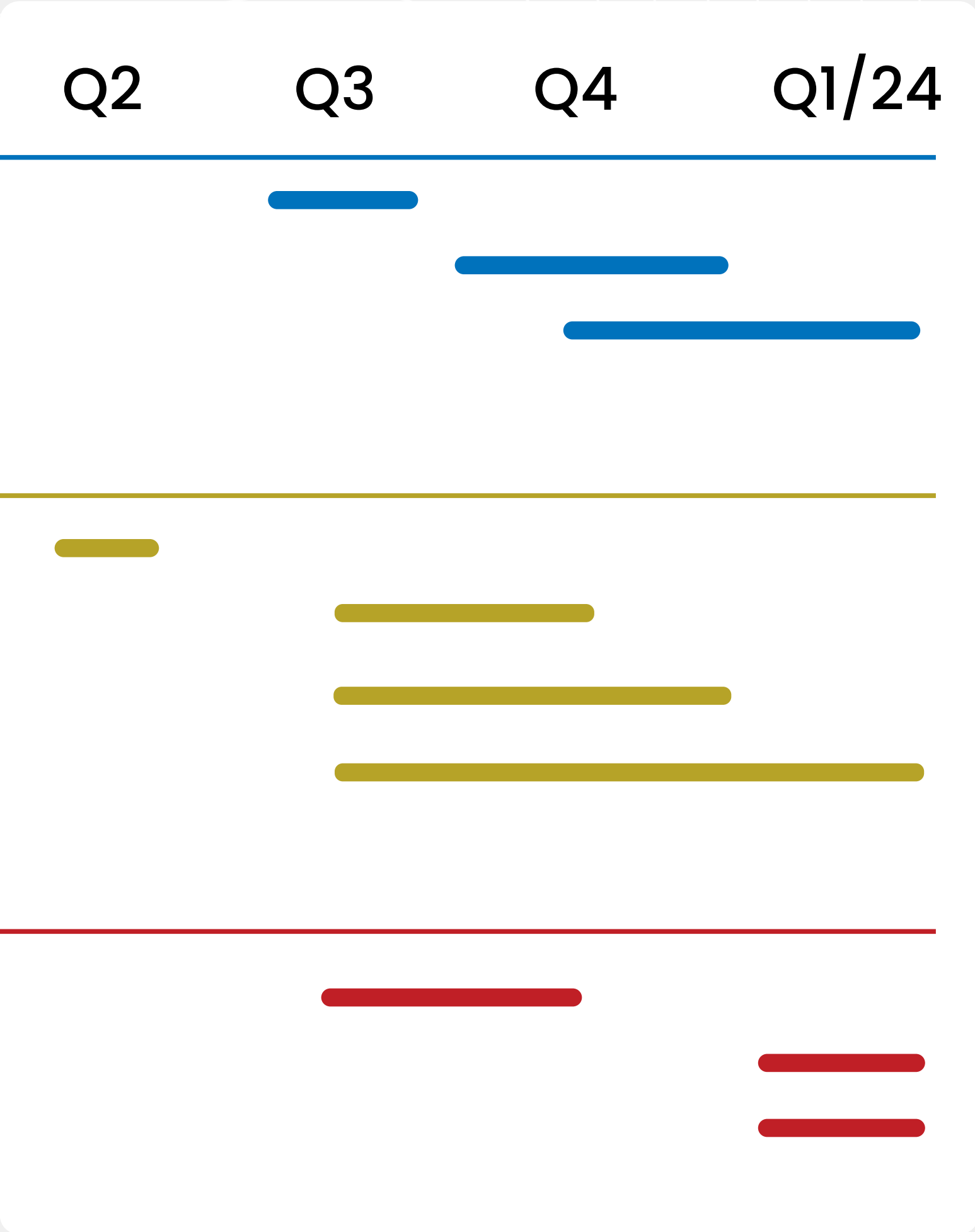
- Reconnaissance drilling – (Smokebush Project)
- Resource-focused drilling – (Smokebush Project)\*
- Metallurgical test work – (Smokebush Project)\*\*

## Gold Work Program

- Induced Polarisation (IP) Survey – (Smokebush Project)
- Reverse circulation drilling – (Wild Viper Project)
- Drill Campaign – (Smokebush Project)
- MMI & Air Core Drilling – (Larin's Lane Project)

## Rare Earths Work Program

- Air core drilling – (Lort River Project)
- Resource-focused infill drilling – (Lort River Project)\*
- Metallurgical test work – (Lort River Project)\*\*
- Maiden JORC Resource Q3/24 – (Lort River Project)\*\*



\* Subject to change; dependent on (amongst other things) the result returned from the Company's exploration activities each quarter and Company's ability to raise additional capital when required.

\*\* Subject to change; dependent on (amongst other things) drill results and metallurgical test work.





# A new era of **Terrain Minerals** is here.

## Targeting potential company-making discovery in 2023

### **Smokebush** – Two drill campaigns & MMI soils completed – **Assay results pending**

- Lithium – 6 pegmaties targets RC drill tested during July 2023 – **Assay results pending – Due late October 2023.**
- Gold – 6 IP targets RC drill tested during July 2023 – **Assay results pending – Due late October 2023.**
- Gold & Copper/Nickel anomalies – Larin's Lane MMI extensions completed July 2023 – **Assay results pending.**
- Larin's Lane air-core drilling, approvals in place targeting October 2023 start date.
- Gallium – Pegmatites RC drilling in June 2023 – 4 zones of Gallium (Ga) discovered, additional testing underway, for Germanium (Ge) and other critical (political) metals – **Assay results pending.**

### **Lort River** – “Proof of concept” REE drilling completed – **Assay results pending**

- Rare Earths (REE) and Gallium – 16 hole, "proof of concept" Air-core drill tested in August 2023.  
– **Assay results pending – Due October – November 2023.**
- Comprehensive drill program targeting a JORC resource end of 2024, and approvals to access private land progressing.
- Quality in-house project generation with high quality project applications currently pending grant.
- Utilising proven exploration approach and industry-standard tools in world leading mining jurisdiction.
- Focused on "future-facing" commodities including Gold, Copper, Gallium, Lithium and Rare earths.
- Operating in regions known to host significant mines.
- Favourable geology including pegmatites and clay-hosted rare earth mineralisation already confirmed across project areas.
- Motivated & focussed team driving regular news flow anticipated throughout 2023 & 2024.



APPENDIX 1 – APPLICATION PENDING

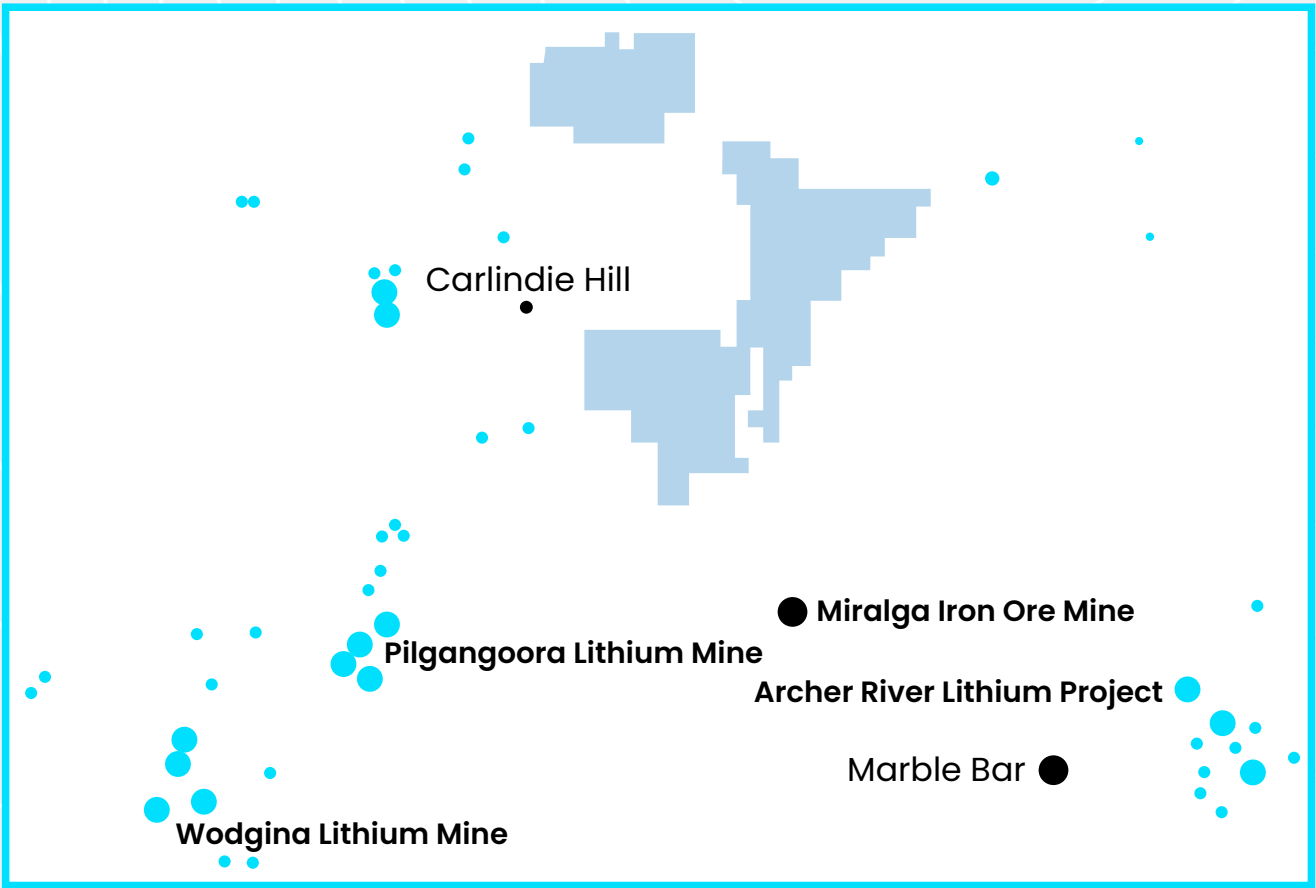
# Carlindie | Lithium Project

Located 90km S/E of Port Headland & covering 737 km<sup>2</sup>.  
~50km N/E of Pilbara Minerals, Pilgangoora mine.

Terrain is seeking to fast track granting of this tenement.  
Terrain will then undertake a 100m x 500m soil sampling program over the entire tenement package area (being ~1600 samples).

Field work to commence immediately following the grant of tenement including soil sampling and assay results.

Terrain’s Carlindie Project is geologically similar to Wildcat Resources – Bolt Cutter Lithium Project.



**Wildcat Resources**  
ASX: WC8  
Market cap: ~\$225 M

Carlindie Hill

TERRAIN  
MINERALS'  
TENEMENTS

Undercover, interpreted  
banded iron formation.

Miralga Iron Ore Mine

100%  
OWNERSHIP

- >> Lithium
- Rare Earths
- Gold

0 20km



APPENDIX 2 – APPLICATION PENDING

# Mukinbudin | Rare Earths Project

Located within the Mukinbudin region of Western Australia, being approximately 300 kilometres east of Perth.

Extensive 1,408km2 tenement area adjoining both Rio Tinto's and IGO's tenement holdings.

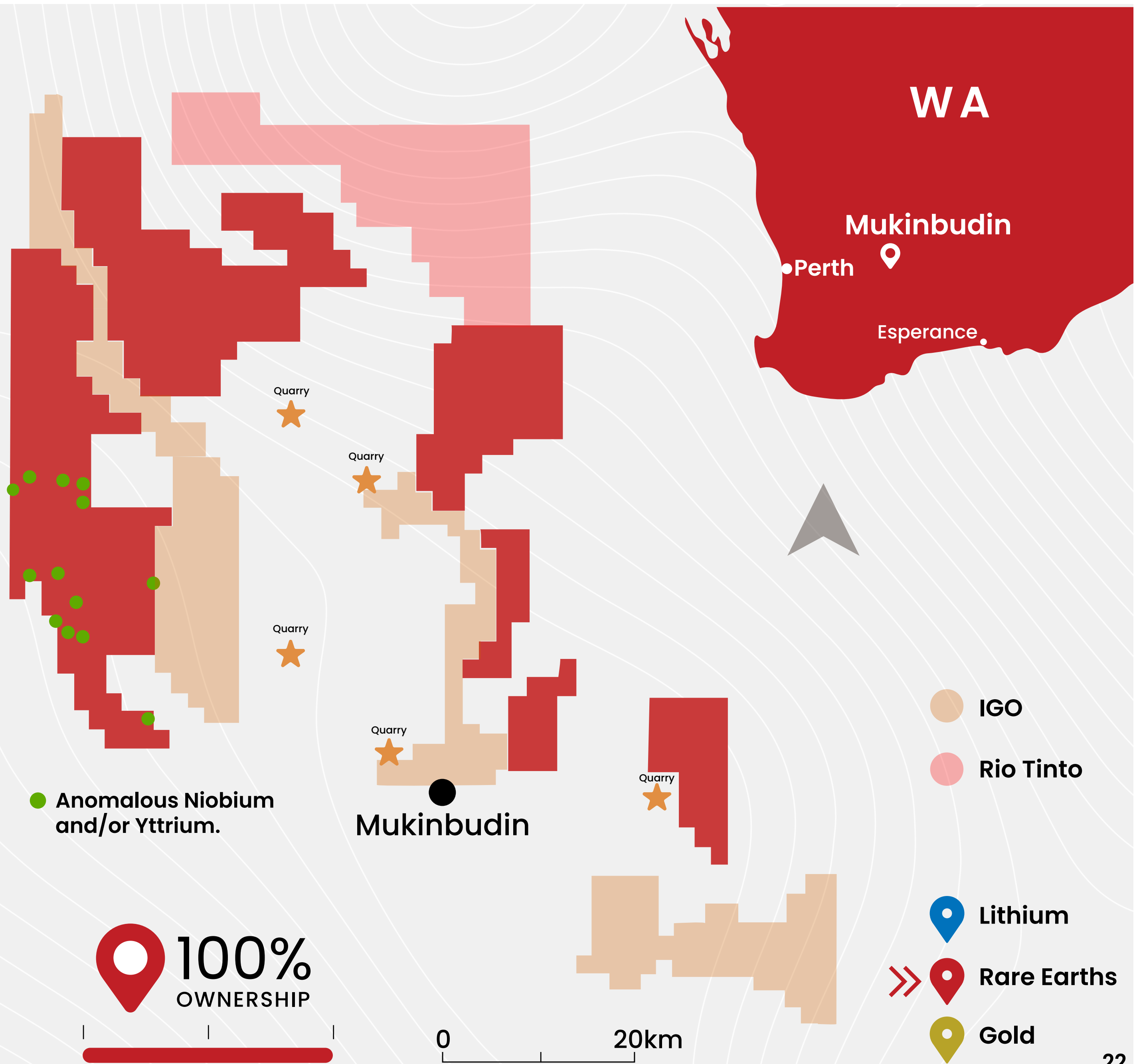
Highly prospective for primary (hard rock hosted) light and heavy rare earth mineralisation.

Mukinbudin one of the very few regions of Australia known to host NYF (Niobium-Yttrium-Fluorine) pegmatites.

NYF (Niobium-Yttrium-Fluorine) pegmatites enriched in light and heavy rare earth mineralisation as well as Gallium.

More than thirteen anomalous Niobium-Yttrium zones already identified within Terrain Minerals' Mukinbudin project area.

Drill testing of known Niobium-Yttrium anomalies to commence immediately after tenement is granted.





APPENDIX 3 – APPLICATION PENDING

# Biloela | Copper Project

The Biloela Project lies 13 kilometres north of the Cracow Gold Mine in the Glandore and Theodore region of Queensland.

Extensive ~2,500km2 tenement area, first identified by Rio Tinto, Gold Fields Limited and Newcrest Mining Limited.

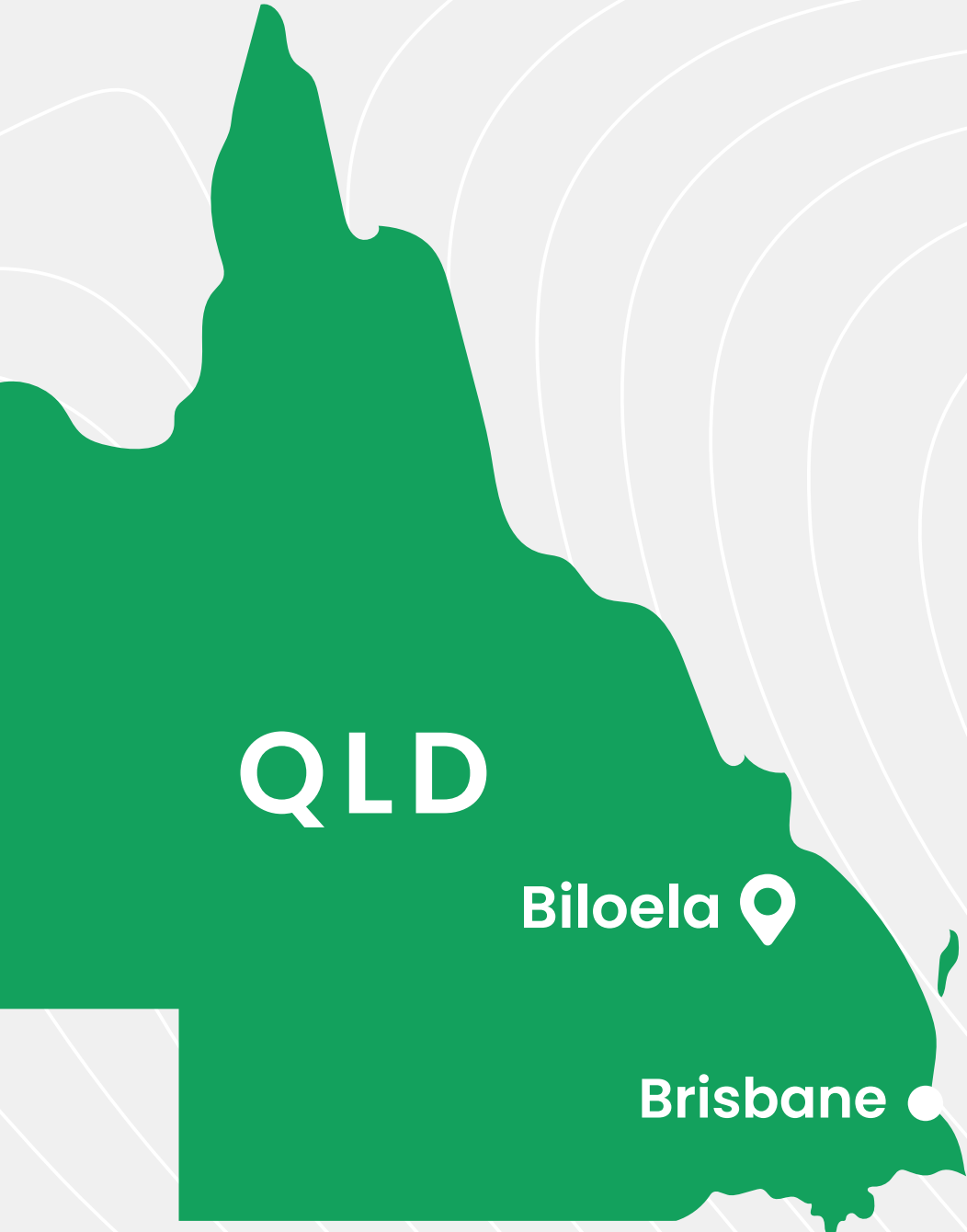
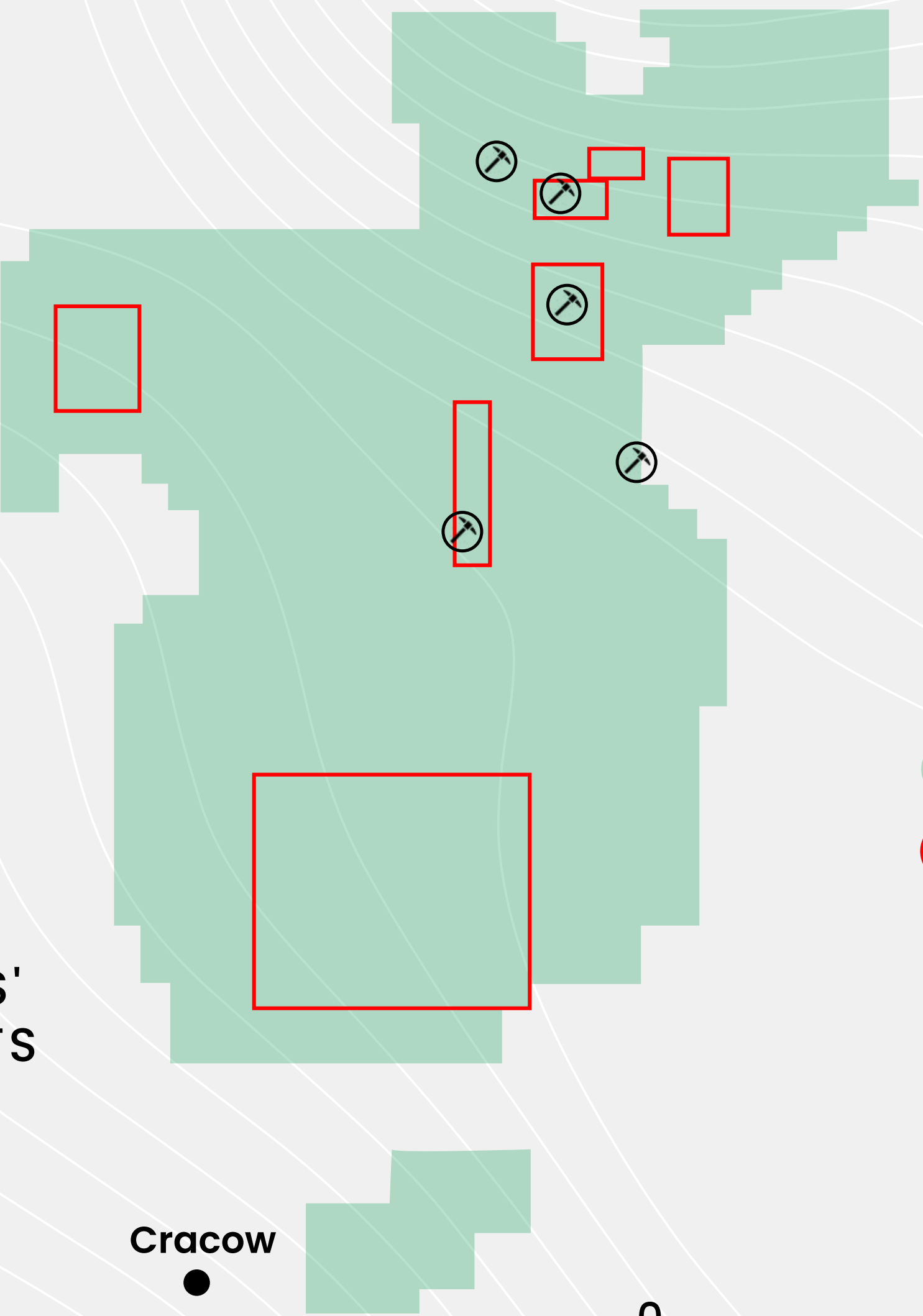
The northwest-trending faults within the north-eastern part of the Biloela Project are similar to those present at the Cracow Gold Mine and are considered the most prospective for epithermal-style gold mineralisation.

Terrain’s internal geological team has identified 7 potential copper and gold sites.



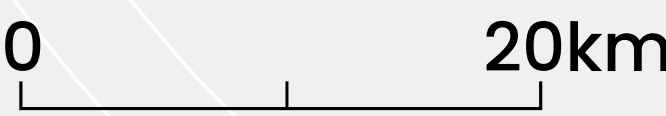
\*Refer to ASX release: 21 June 2023 – Terrain Secures 100% ownership of historical Copper Mines Next door to Cracow Gold Mine, Queensland.

TERRAIN  
MINERALS'  
TENEMENTS



- Historical mines
- Terrain Minerals Biloela tenements
- Target areas within the project

- Lithium
- Rare Earths
- Gold
- Copper





# Want to know more? Contact Terrain Minerals

## **Principal Registered Office**

Suite 2, 28 Outram Street  
West Perth, Western Australia, 6005  
Australia  
PO Box 79, West Perth WA 6872  
Telephone: +61 8 9381 5558  
[terrain@terrainminerals.com.au](mailto:terrain@terrainminerals.com.au)

[terrainminerals.com.au](http://terrainminerals.com.au)

## **Share Register**

Computershare Investor Services Pty Ltd  
Level 11, 172 St Georges Terrace,  
Perth, WA, 6000  
Telephone: +61 8 9323 2000







TERRAIN MINERALS