

# ORIGEN Project Generator Day

## Silicon Analogue Projects

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Hot Tip

Celts

Firenze

Pearl  
String

See transcript on page 30



# Forward-Looking Statement

This presentation includes certain statements that may be deemed “forward looking statements”. All statements in this presentation, other than statements of historical facts, that address events or developments that Orogen Royalties Inc. (the “Company”) expects to occur, are forward looking statements. Forward looking statements are statements that are not historical facts and are generally, but not always, identified by the words “expects”, “plans”, “anticipates”, “believes”, “intends”, “estimates”, “projects”, “potential” and similar expressions, or that events or conditions “will”, “would”, “may”, “could” or “should” occur.

Although the Company believes the expectations expressed in such forward looking statements are based on reasonable assumptions, such statements are not guarantees of future performance and actual results may differ materially from those in the forward looking statements. Factors that could cause the actual results to differ materially from those in the forward looking statements include market prices, exploitation and exploration success, and continued availability of capital and financing, and the general economic, market or business conditions. Investors are cautioned that any such statements are not guarantees of future performance and actual results or developments may differ materially from those projected in the forward looking statements. Forward looking statements are based on the beliefs, estimates and opinions of the Company’s management on the date the statements are made. Except as required by securities laws, the Company undertakes no obligation to update these forward looking statements in the event that management’s beliefs, estimates or opinions, or other factors, should change.



# Technical Team



**Mark Coolbagh, PhD**  
Chief Geoscientist America

- 40 years experience
- Integral role in discovery of Silicon-Merlin deposit and in the Gatsuurt Gold deposit discovery team
- Discovered over a half-dozen active geothermal systems in the US and South America



**Laurence Pryer, PhD**  
VP Exploration

- Over a decade of experience in base and precious metal exploration
- Led project generation team since Orogen's inception
- Conducted all aspects of early stage exploration including target generation, drilling, and joint venture/exploration alliance management



**Eli Turner, MSc**  
Project Geologist

- Experience in greenfield and advanced-stage exploration programs
- Leads Orogen's field exploration and strategy in Nevada
- Oversees the day-to-day safe operations of exploration alliances and partnerships




# Advanced Argillic Alteration Review

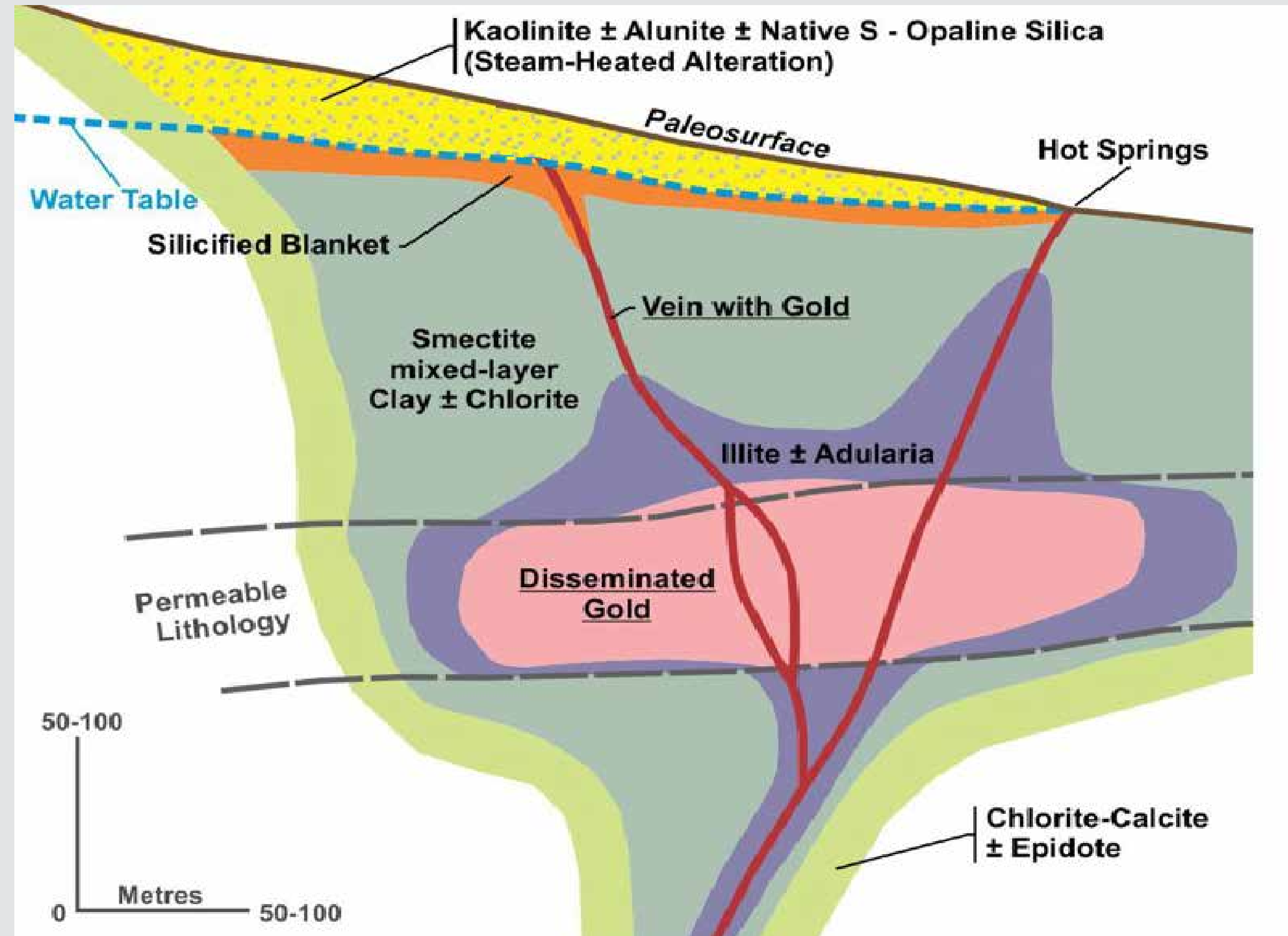
- Intense alteration caused by acidic fluids
- Forms at shallow depths above many economic mineral deposits
- Easy to identify with remote sensing
- Forms in multiple environments



# Low Sulfidation Epithermal Review

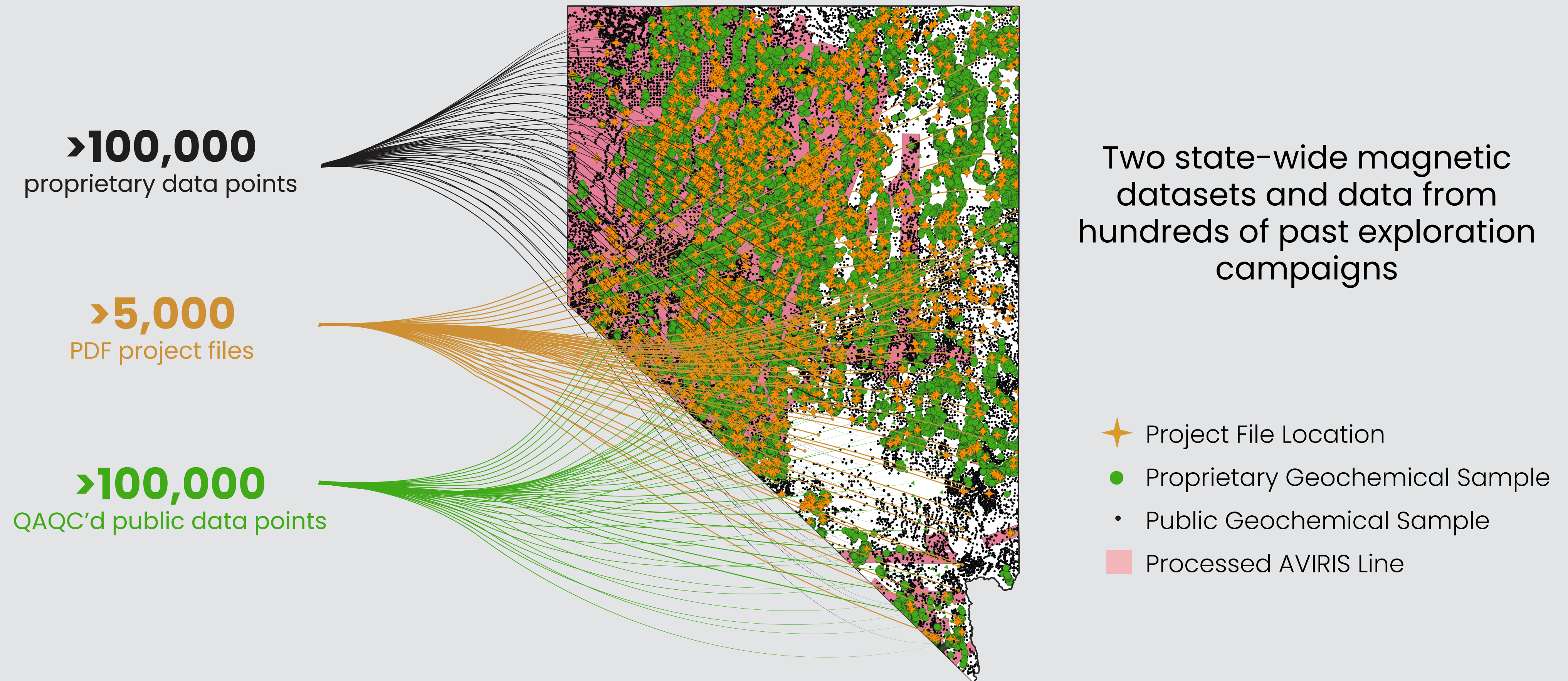
## Gold Distribution

-  Steam Heated Alteration typically 0 to 10 ppb gold
-  Chalcedonic Blanket typically 10 to 100 ppb gold
-  High-Grade Veins typically >10 ppm gold
-  Illite-Adularia Halo typically 0-1 ppm gold
-  Disseminated Ore Zone typically 1-5 ppm gold





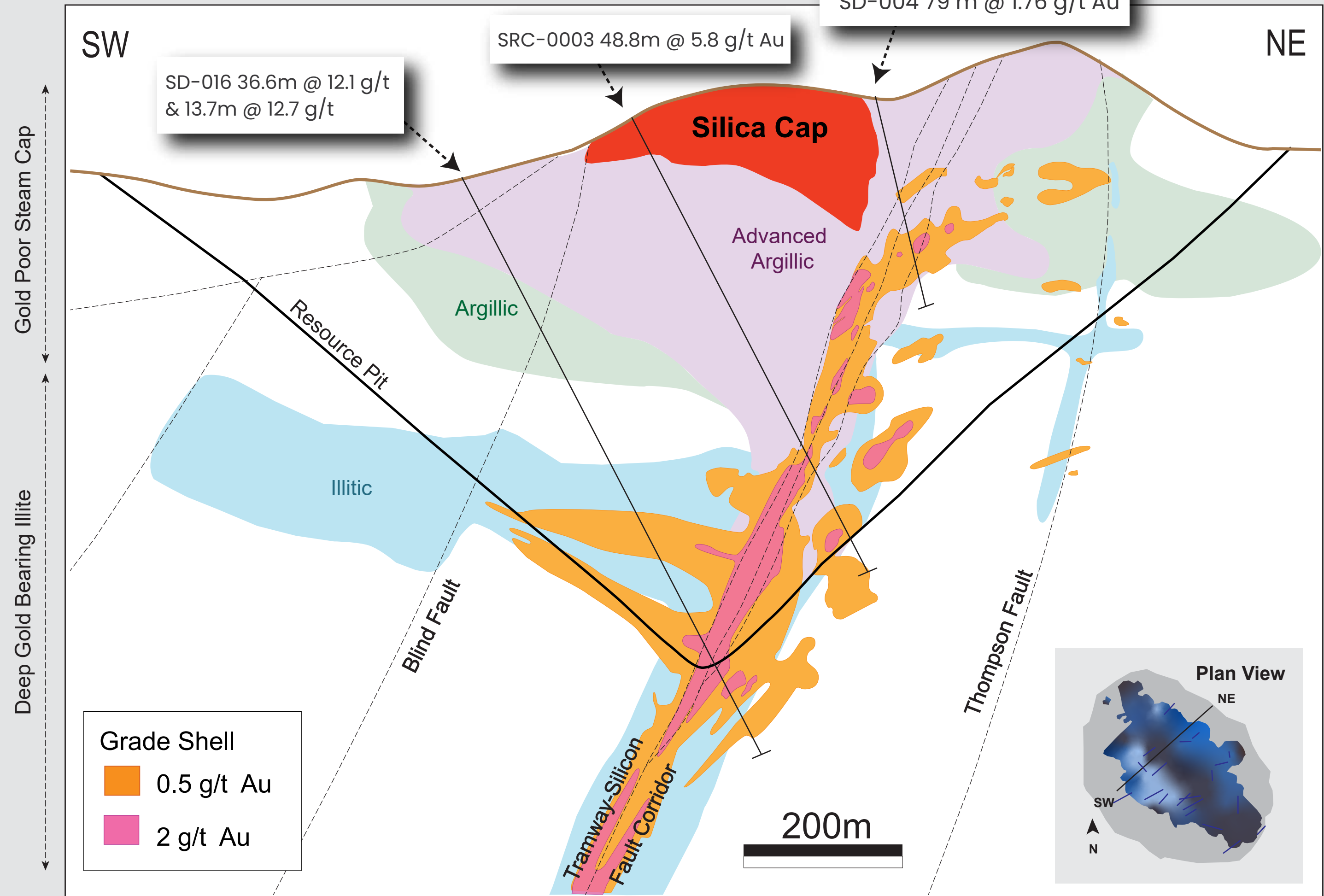
# Orogen's Data Advantage





# Silicon Steam Cap

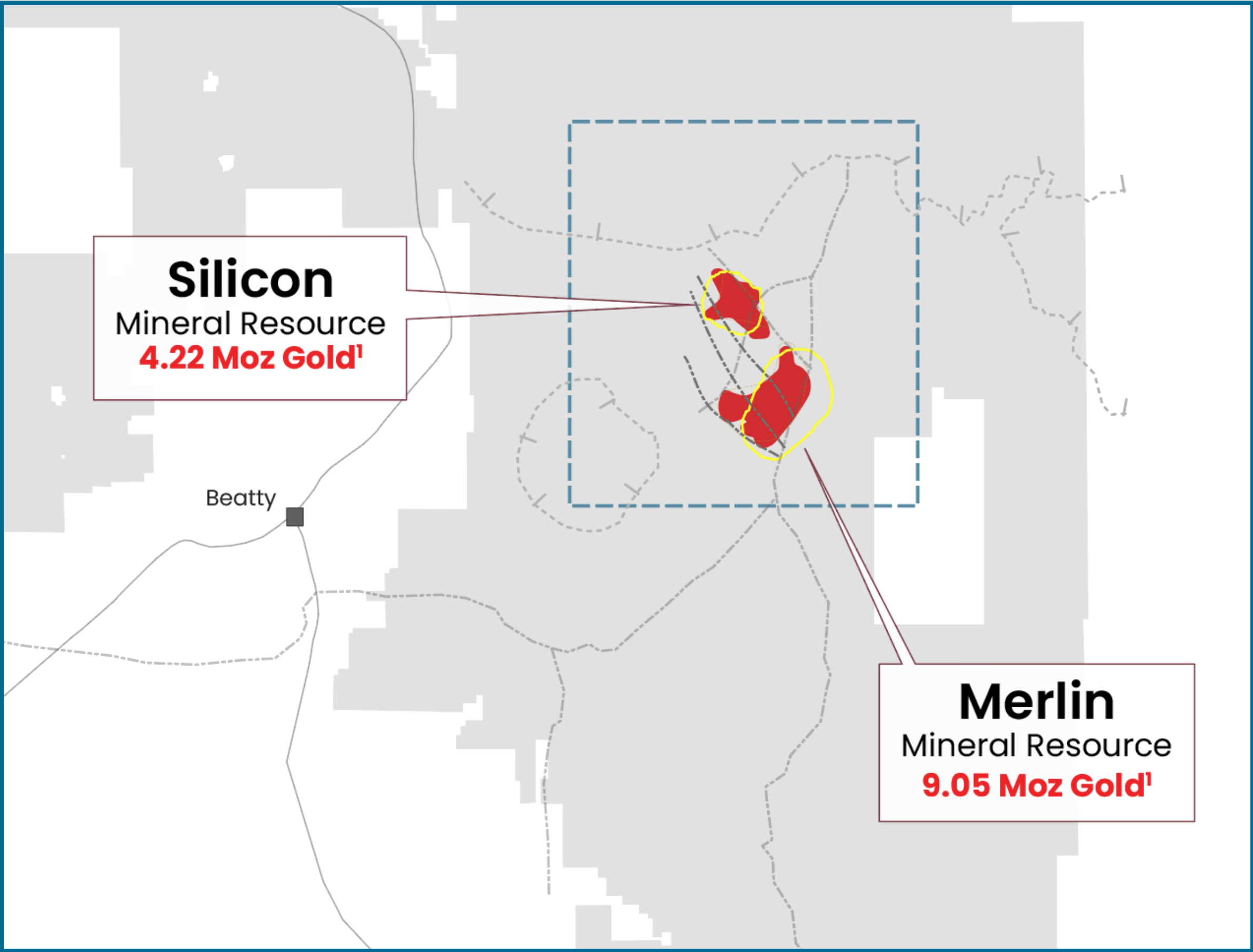
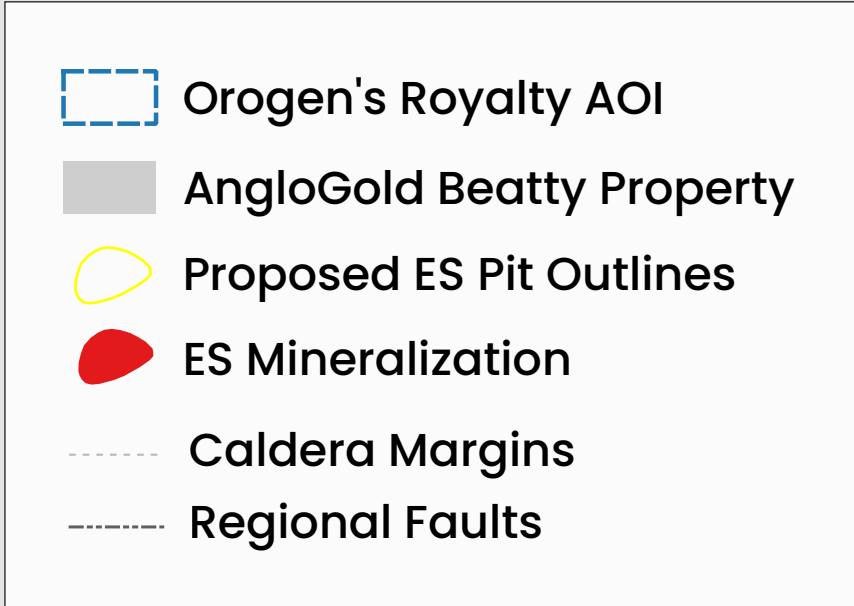
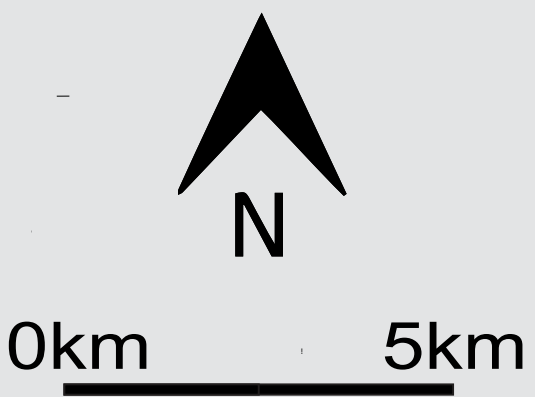
- Silicon first identified due to large advanced argillic cell and associated 20-metre-thick chalcedony blanket at surface
- No gold anomalism at surface
- Staked by the Orogen team in 2014 to 2015
- Rapidly advanced to current resource
- Follow on exploration led to the Merlin discovery



*Drill hole locations are approximate and schematic.*



# Merlin Deposit





# Silicon Analogue Projects



50 km



# Hot Tip

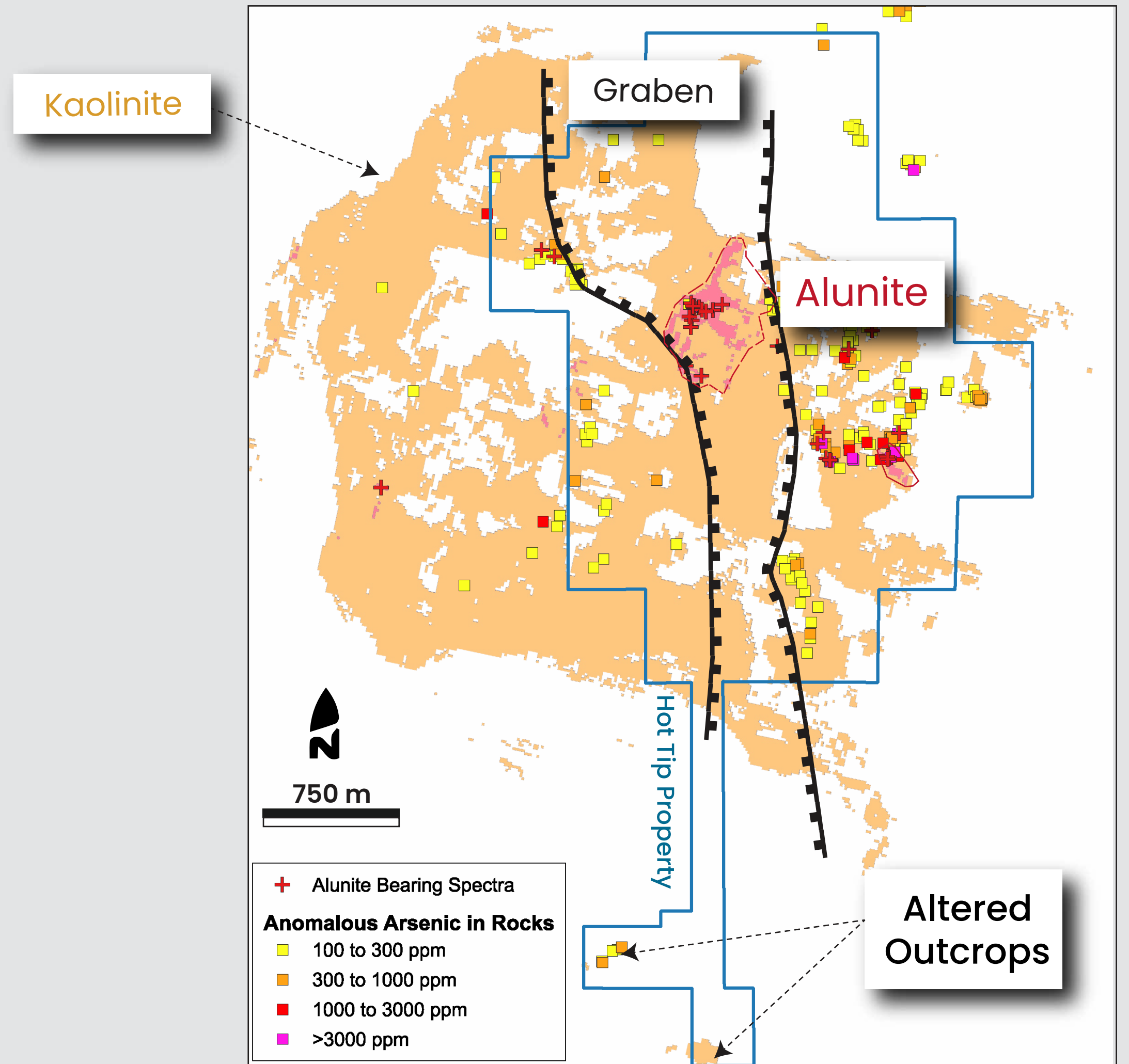
Newly identified upwelling zone within graben hosted alteration cell





# Hot Tip Alteration

- Gold-poor advanced argillic steam cap
- Minimum five-kilometre diameter with newly recognized central core of alunite-pyrite
- Highly anomalous pathfinders
- District-scale play that extends under cover



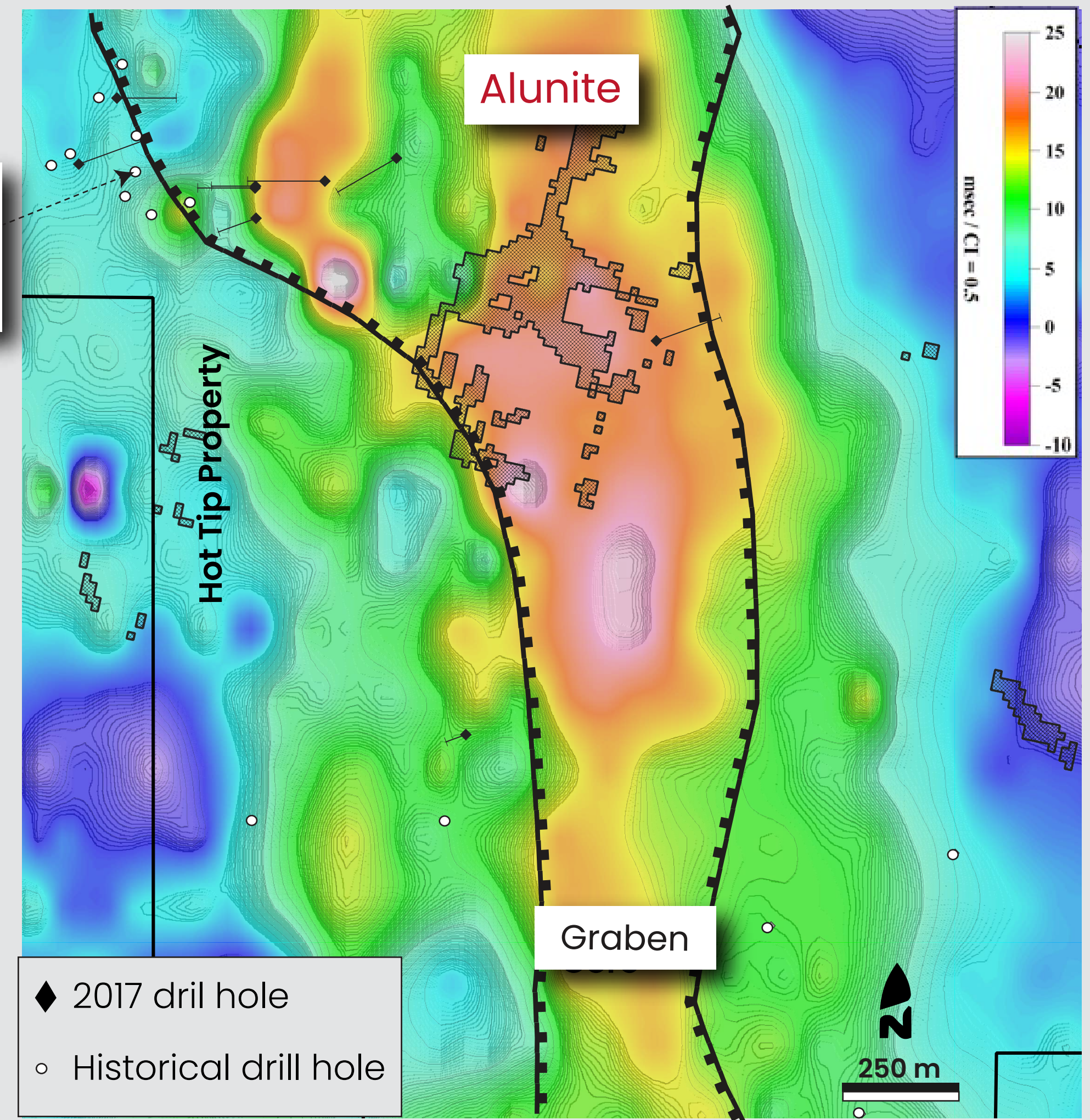


# Hot Tip Geophysics

Chargeability from historical gradient array IP survey at Hot Tip

- Chargeability anomaly in alunite-pyrite core
- Extends size and adds coherency to the most intense part of the system
- Historical drilling returned anomalous gold peripheral to western graben margin but main alunite-pyrite zone is untested

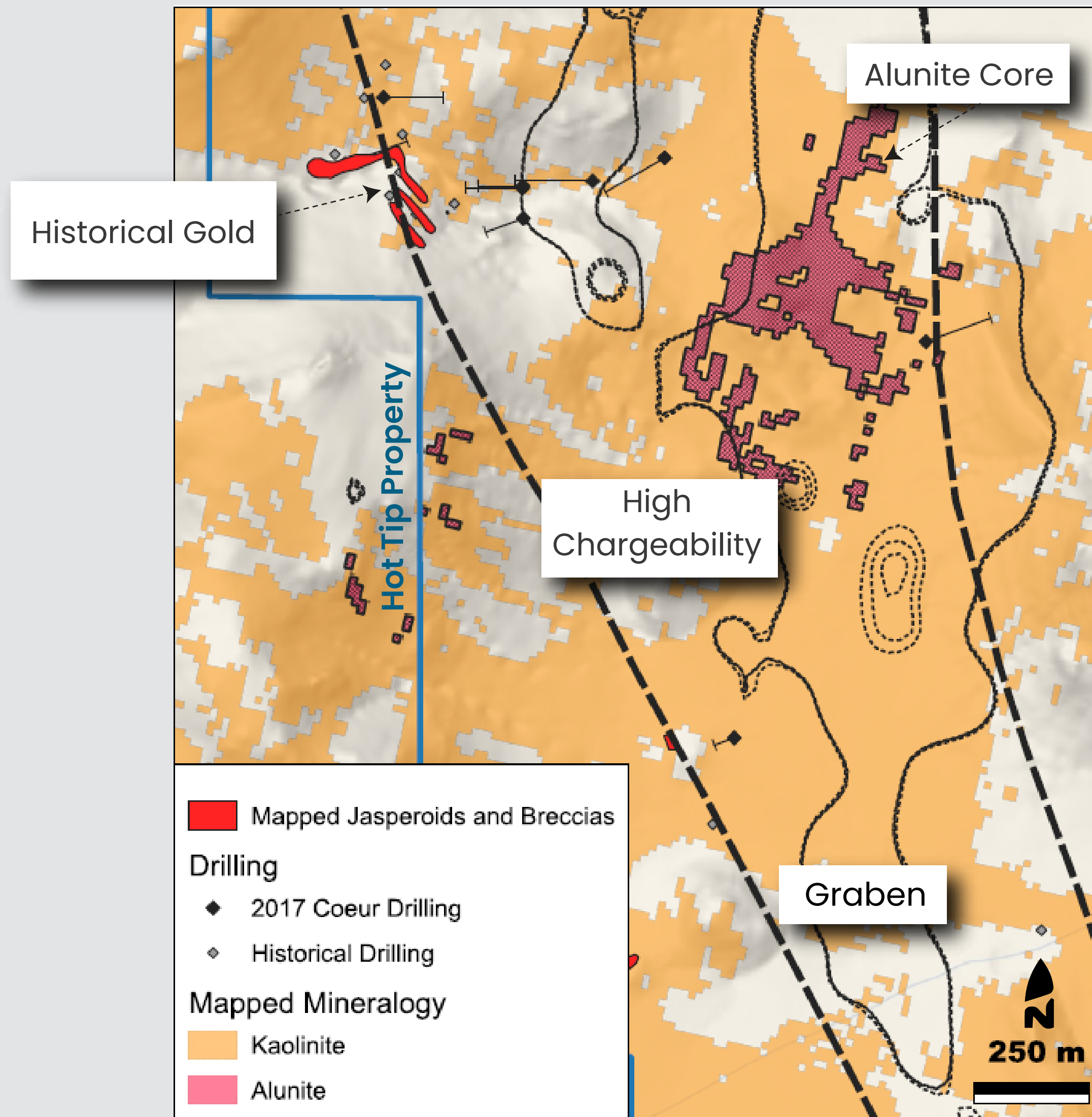
24 m @  
0.38 g/t gold





# Hot Tip Summary

- Large steam cap with widespread pathfinder anomalism
- Intense alunite alteration focused on graben indicates structurally controlled upwelling zone
- Chargeability shows extent of this zone which is untested by historical drilling
- Open under cover to north and south





# Celts

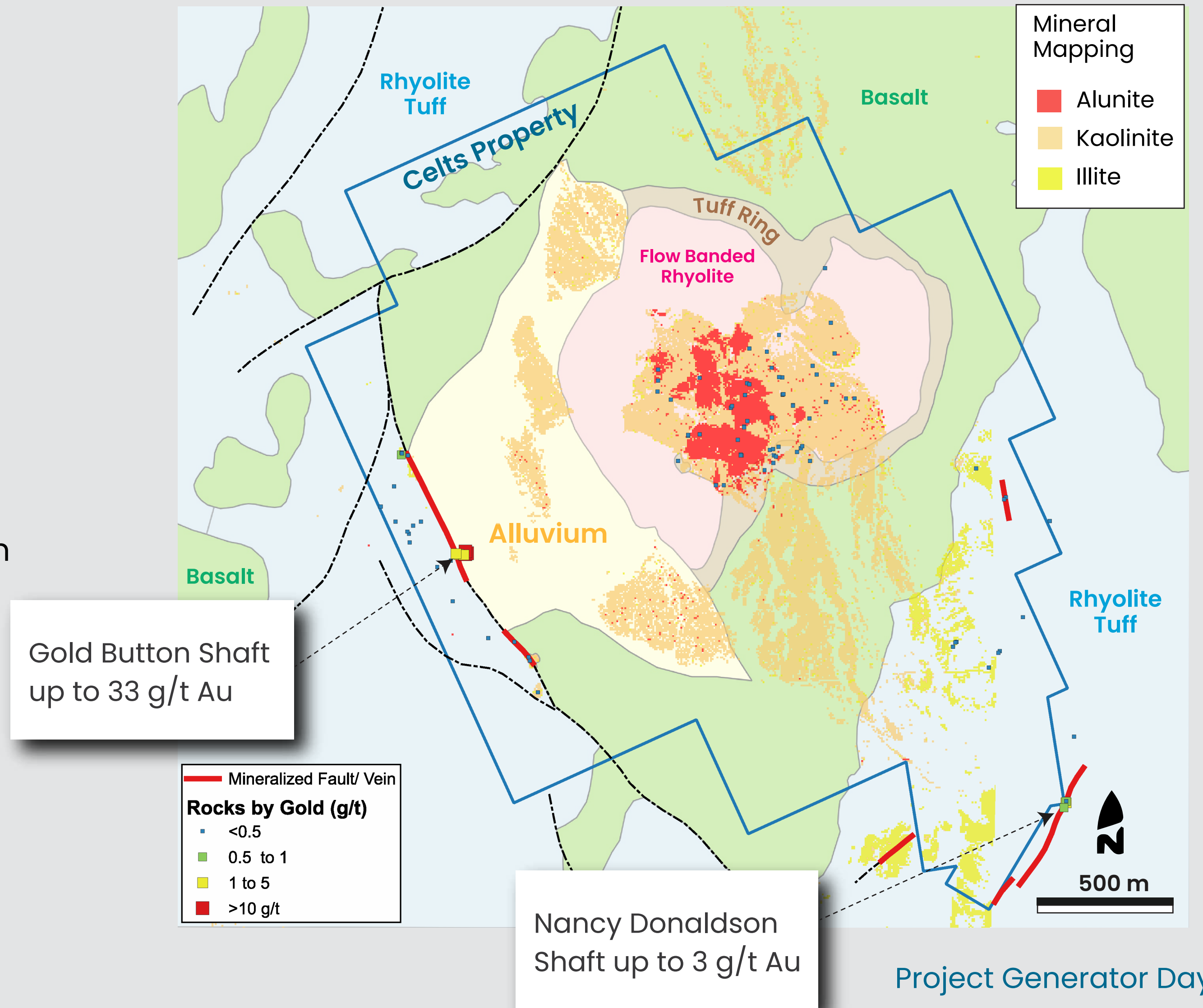
Low sulphidation steam cap adjacent to high sulphidation district





# Celts Alteration and Geochemistry

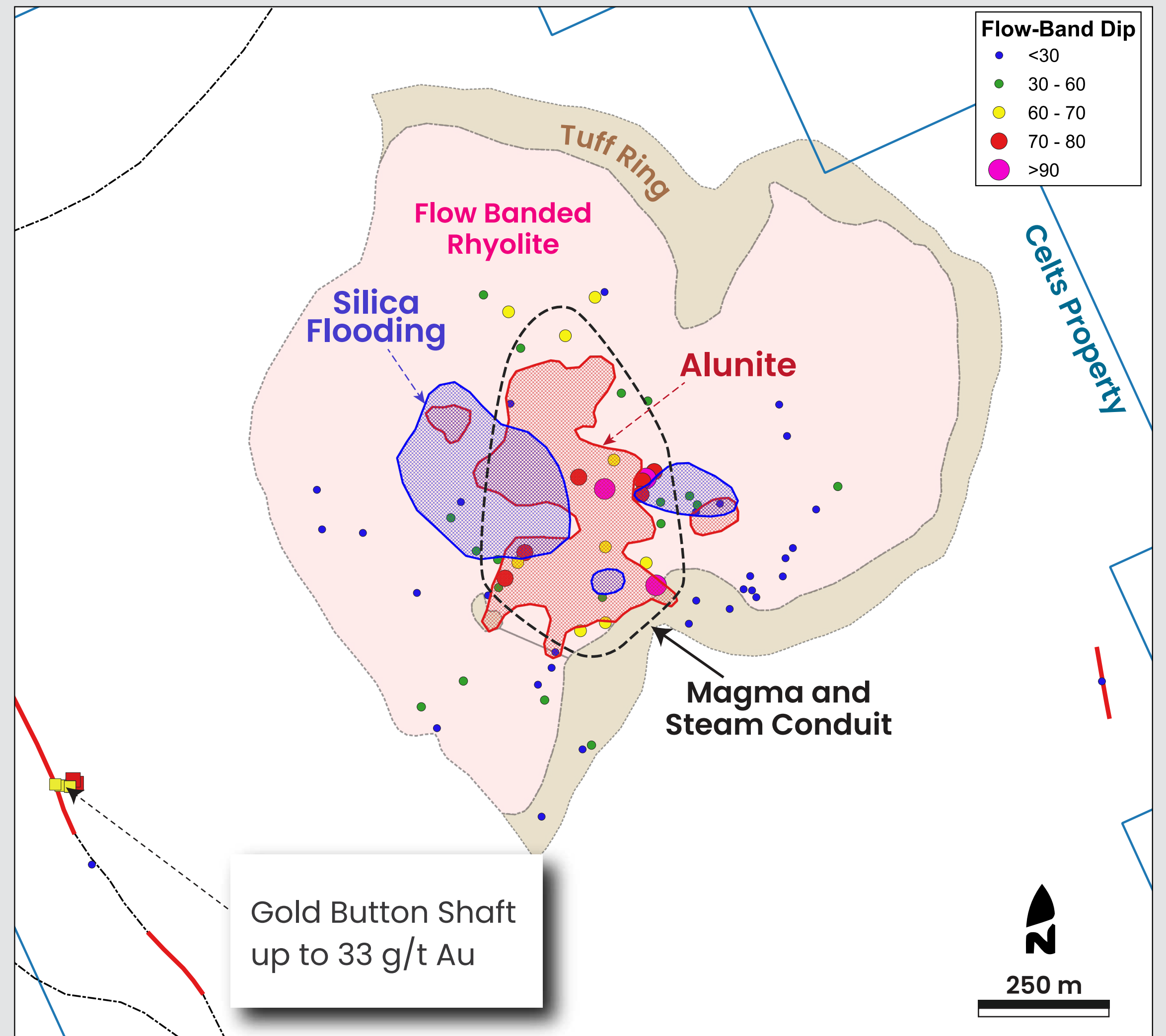
- Alteration cell centered on Tertiary rhyolite dome
- Alunite and kaolinite form 800 metre wide zone interspersed with fine grained silicification
- Associated with the same magmatic-tectonic setting as Silicon and Merlin
- No gold associated with steam cap
- Gold-bearing veins peripheral to and below the steam cap





# Celts Structure

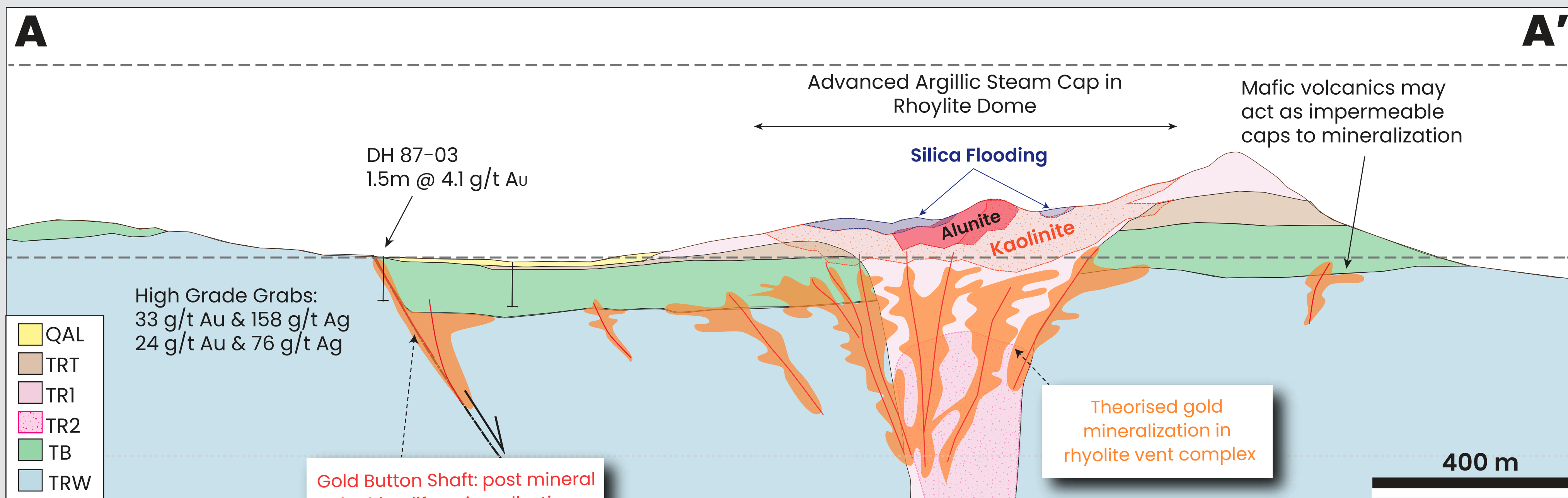
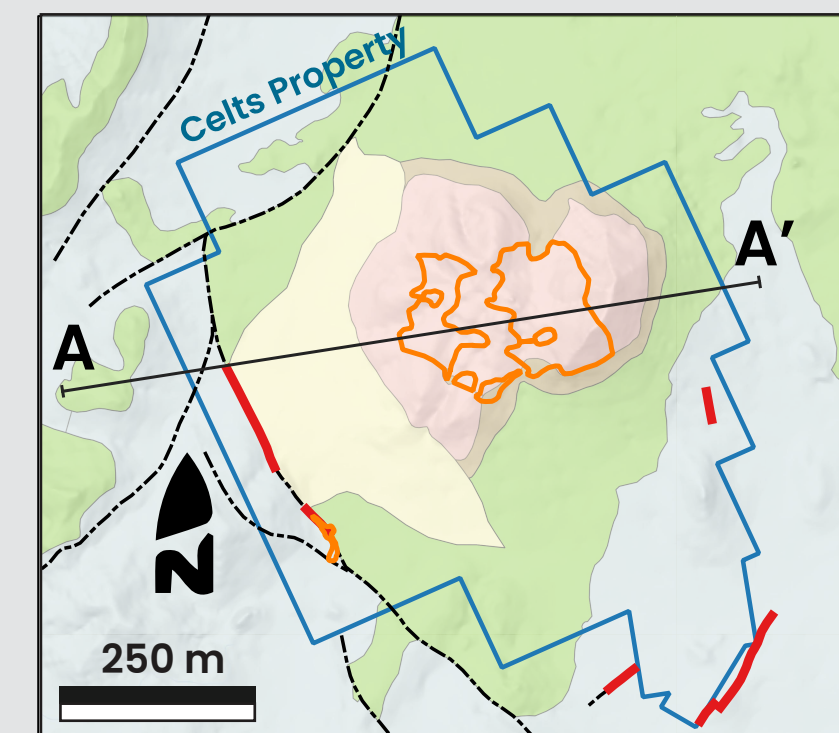
- Flow-banding in the Rhyolite dome steepens into a north-south corridor
- Corridor correlates with concentrated alunite alteration
- Indicates vent for dome magmatism and fluid conduit for subsequent epithermal mineralization





# Celts Target Overview

- High-level exposure of a low-sulphidation system; core of boiling zone completely preserved
- Peripheral, low-elevation vein exposures confirm that the system is gold bearing
- Potential for gold mineralization beneath altered dome and extending beneath capping basalt





# Firenze

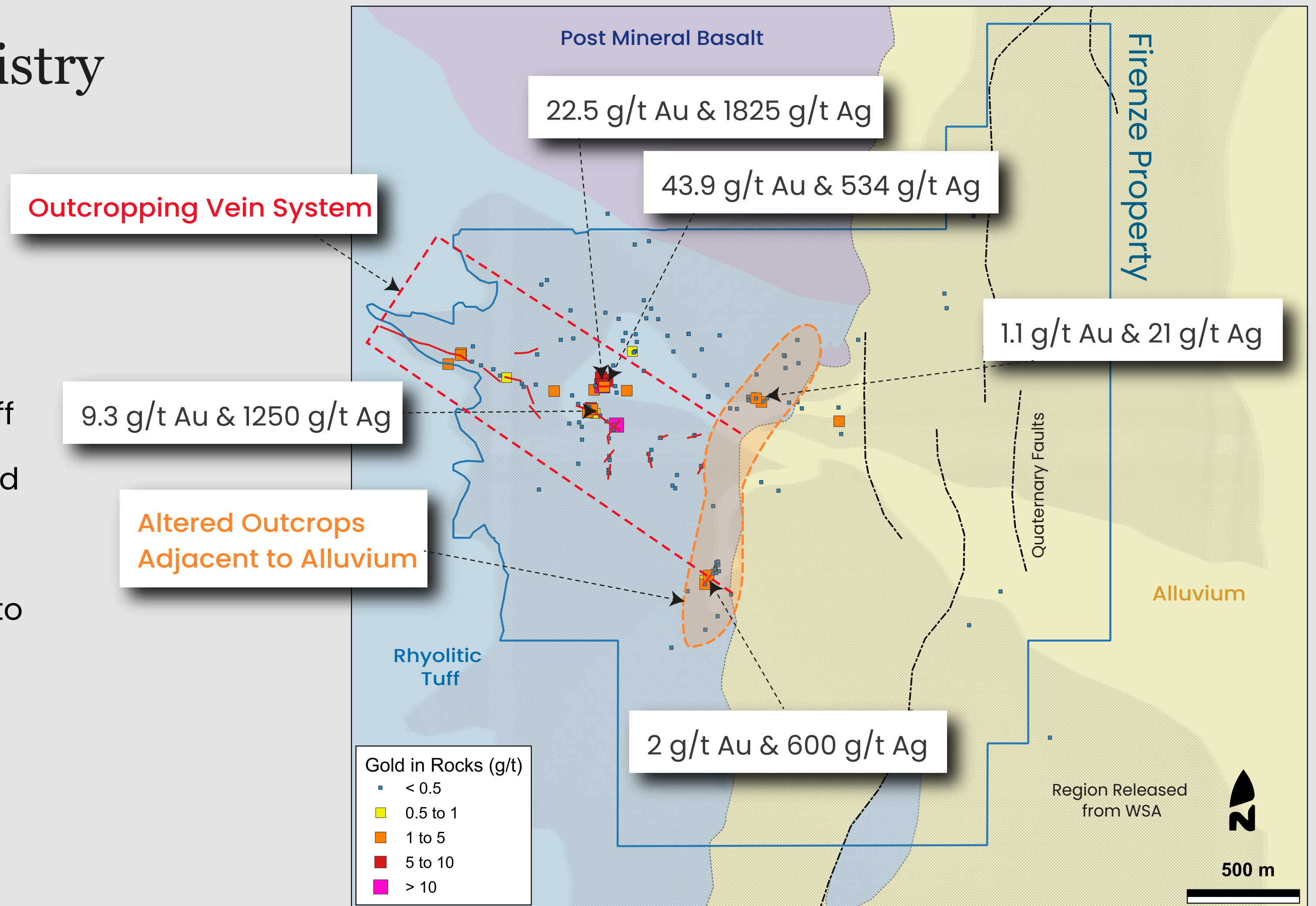
Bonanza grade veins recently released from protected area





# Firenze Geochemistry

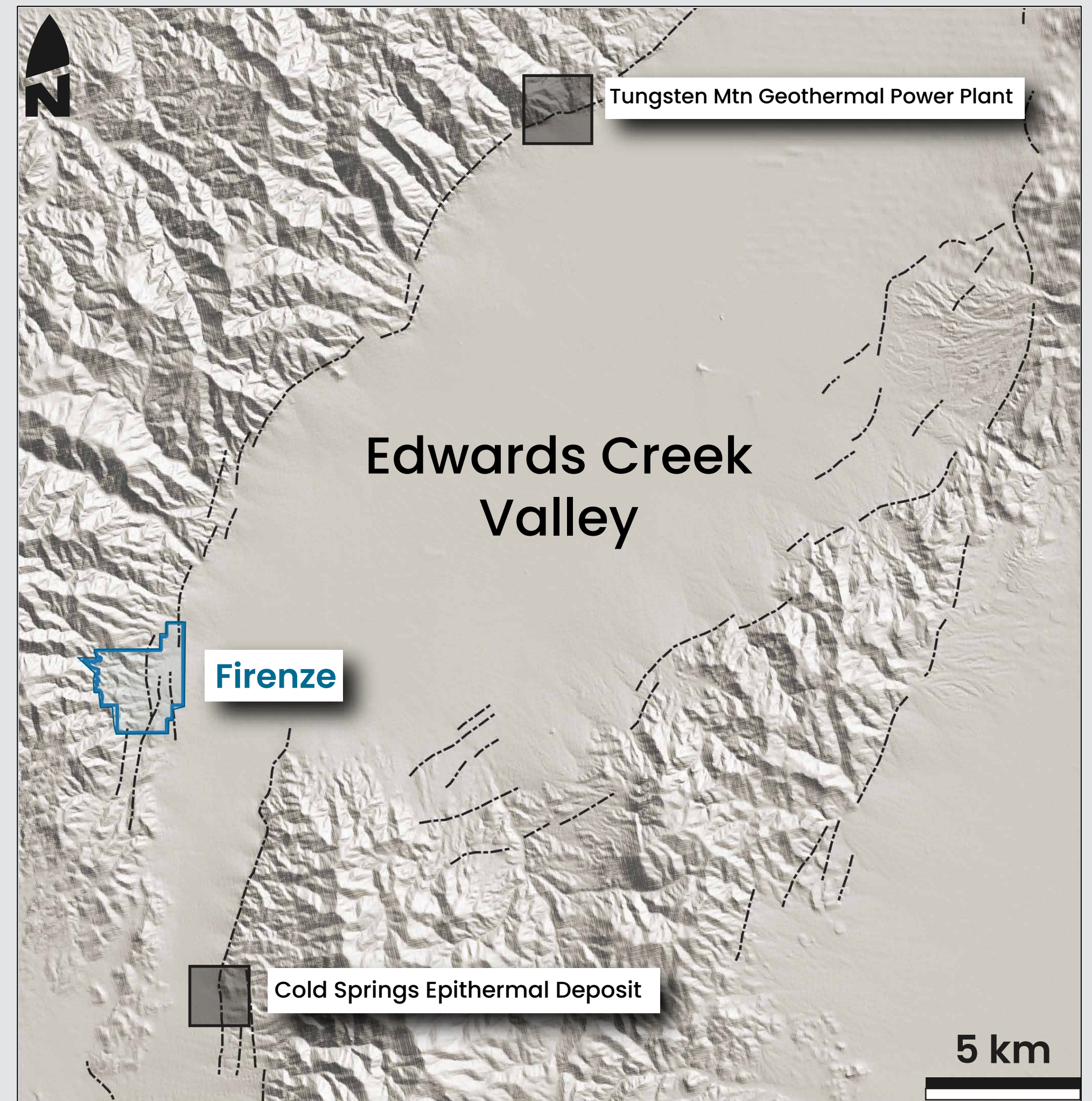
- Undrilled epithermal veins recently released from Wilderness Study Area
- Hosted within a rhyolitic tuff
- Bonanza grades associated with quartz-adularia veins and veinlets
- System open under cover to the east towards a significant structural zone





# Firenze Structural Setting

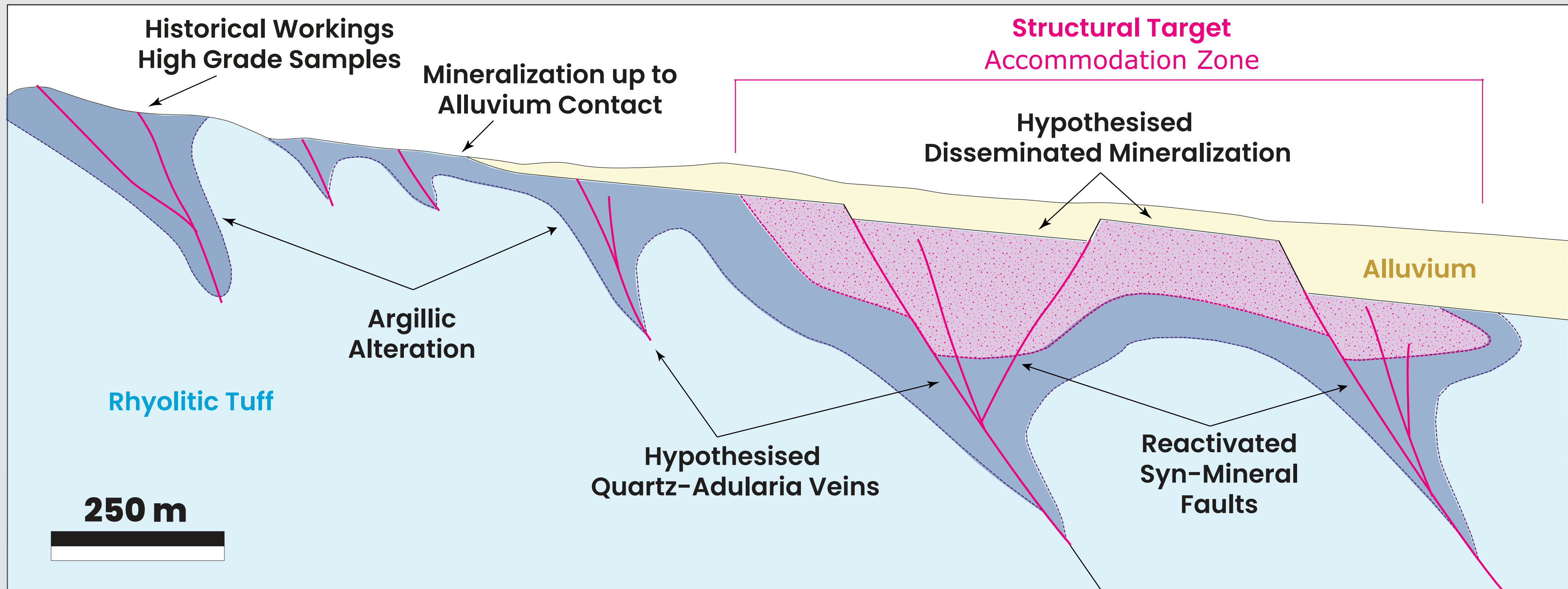
- In Edwards Creek Valley, epithermal systems are located at basin-bounding accommodation zones and fault tips
- At Firenze, an accommodation zone is located under shallow cover to the east of the outcropping veins
- This constitutes a favorable structural zone that has not been drill tested





# Firenze Target Overview

- Down-dip extensions of outcropping veins are untested
- Veining and alteration continue up to alluvium contact
- Accommodation zone under shallow cover provides an extensional setting favourable for epithermal deposits
- Prospective for high-grade veins and bulk-tonnage mineralization





# Pearl String

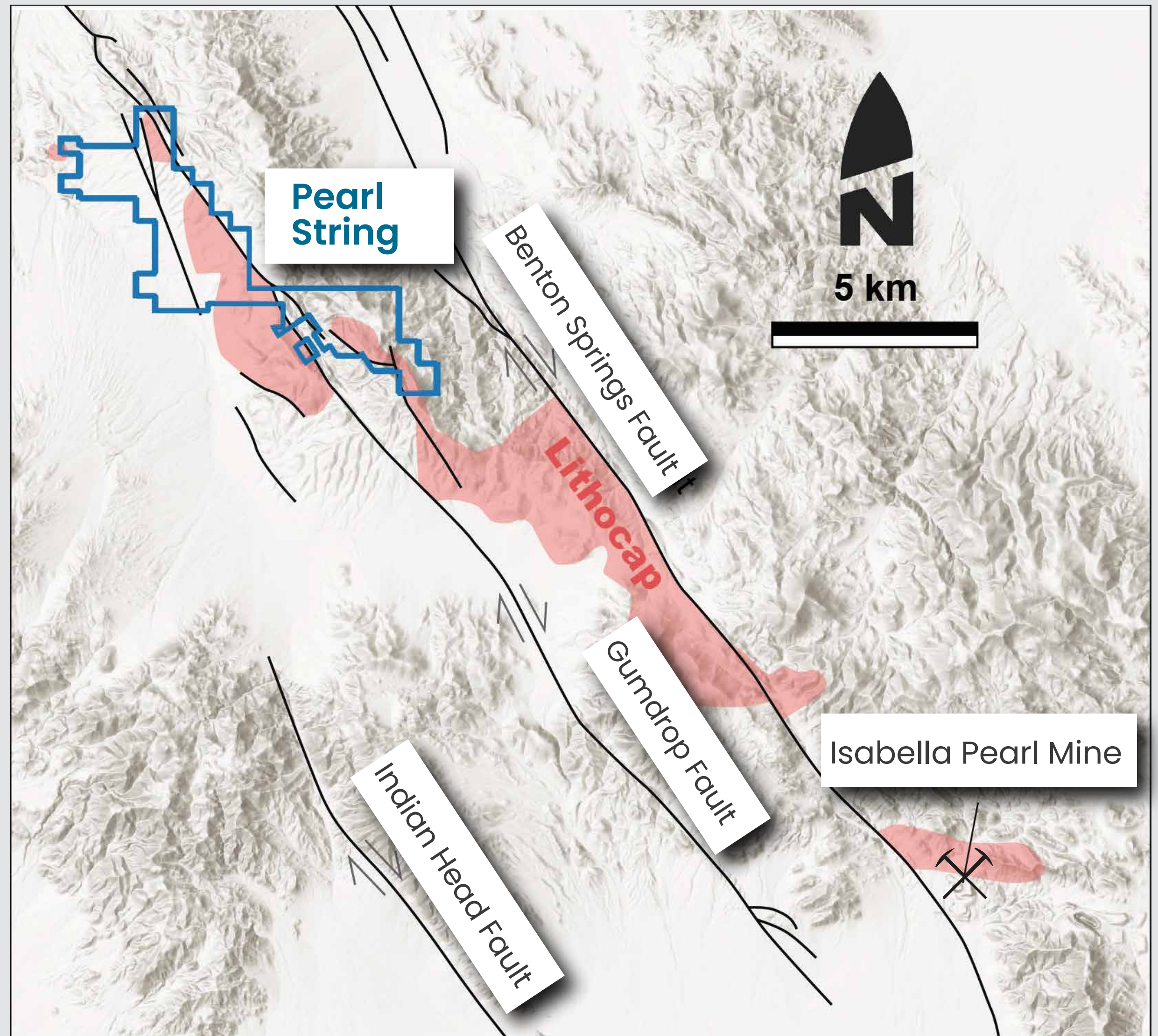
New structural model reveals covered high-sulfidation target





# Pearl String Alteration and Setting

- Northern portion of a twenty-five-kilometre long lithocap
- Dissected by multiple faults and partly hidden by post-mineral cover
- Isabella Pearl mine (Fortitude gold) at southern end

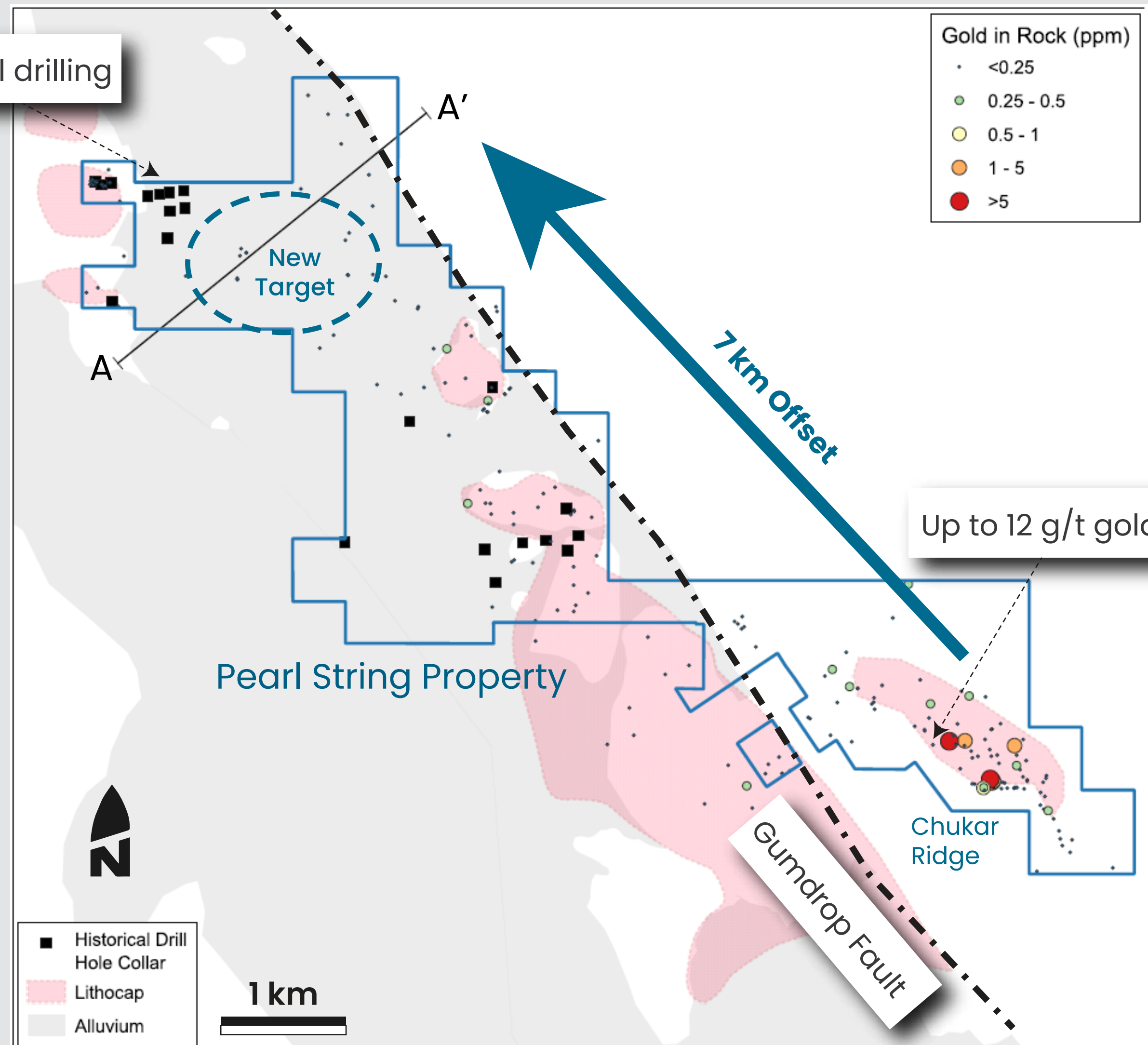




# Pearl String Target Concept

- Alteration on the property is controlled by northwest trending syn-mineral faults
- Accounting for post-mineral slip restores the southern Chukar Ridge area beneath the covered, northern part of the property
- Defines a blind structural target surrounded by advanced argillic alteration and geochemical anomalism

Gold in historical drilling

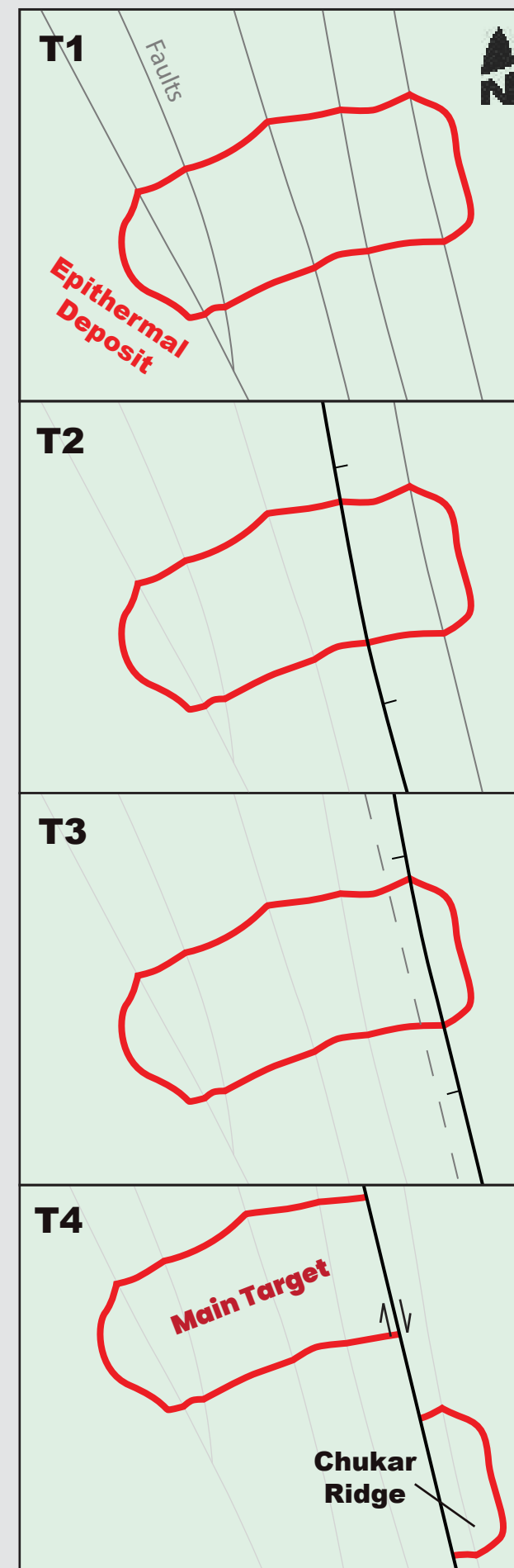




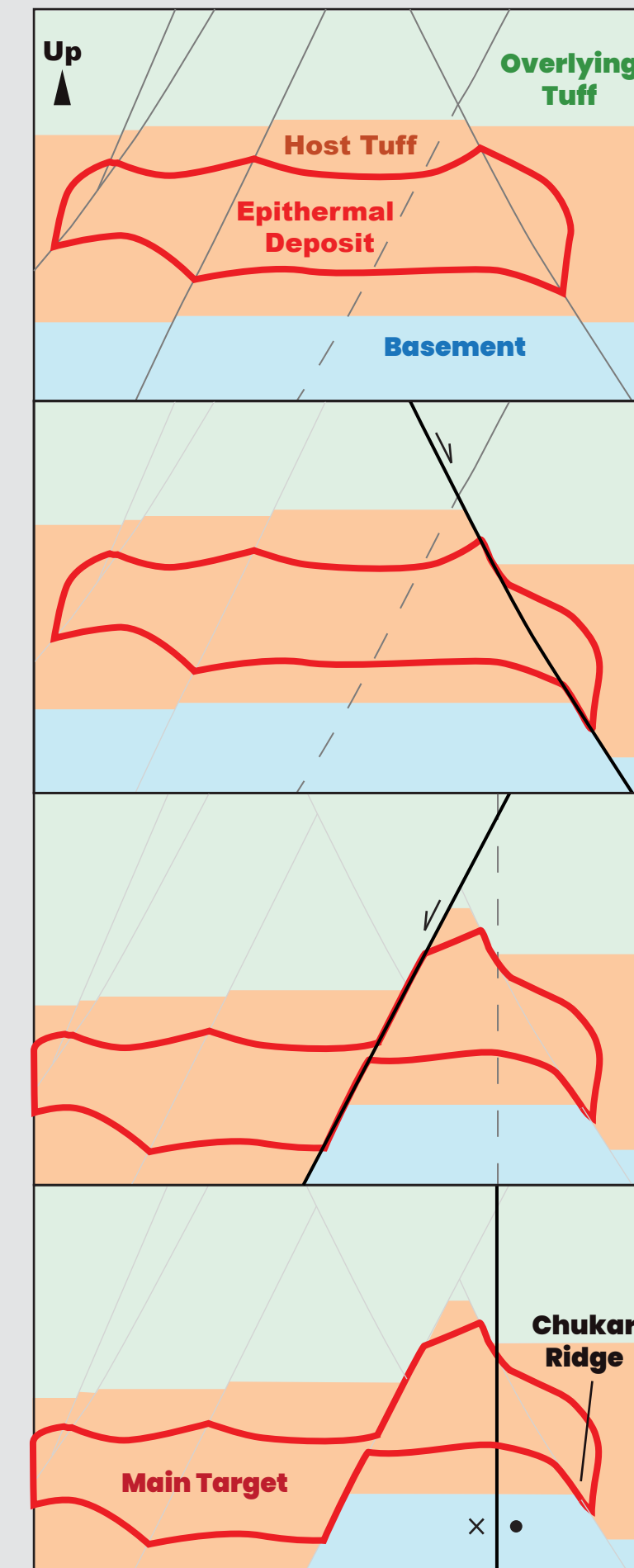
# Pearl String Structural Reconstruction

- Dextral and normal displacements disrupt the postulated high-sulfidation system
- Chukar Ridge, in southeast of property, interpreted to be offset portion of the main deposit
- Core of the system located under alluvium in north of property

Plan View



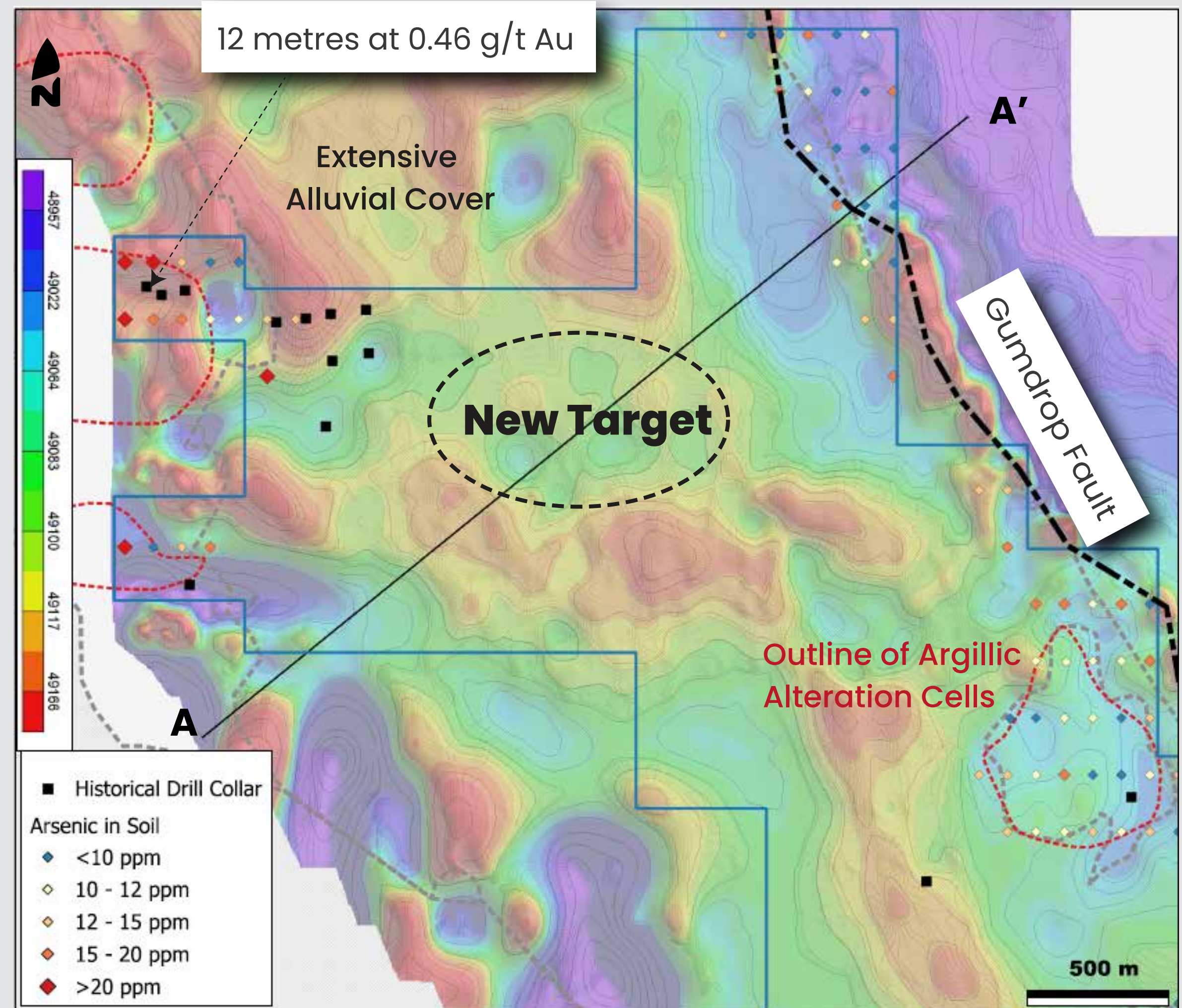
Cross Section





# Pearl String New Target

- Principal target under post-mineral cover in the northern part of property
- Rimmed by strong alteration and anomalous pathfinders
- Subdued magnetics consistent with hydrothermal alteration
- Historical gold intercepts immediately to west

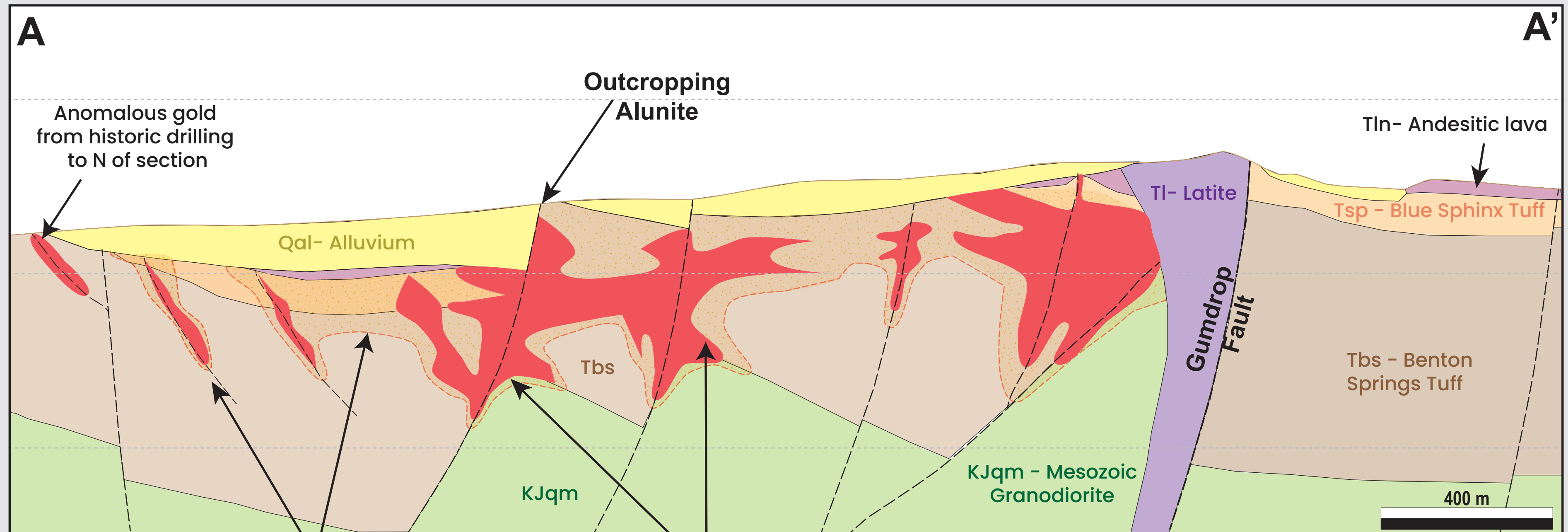




# Pearl String Cross Section

- Potential for multi million-ounce system beneath post-mineral alluvium comparable to Paradise Peak or Salares Norte

Looking NW



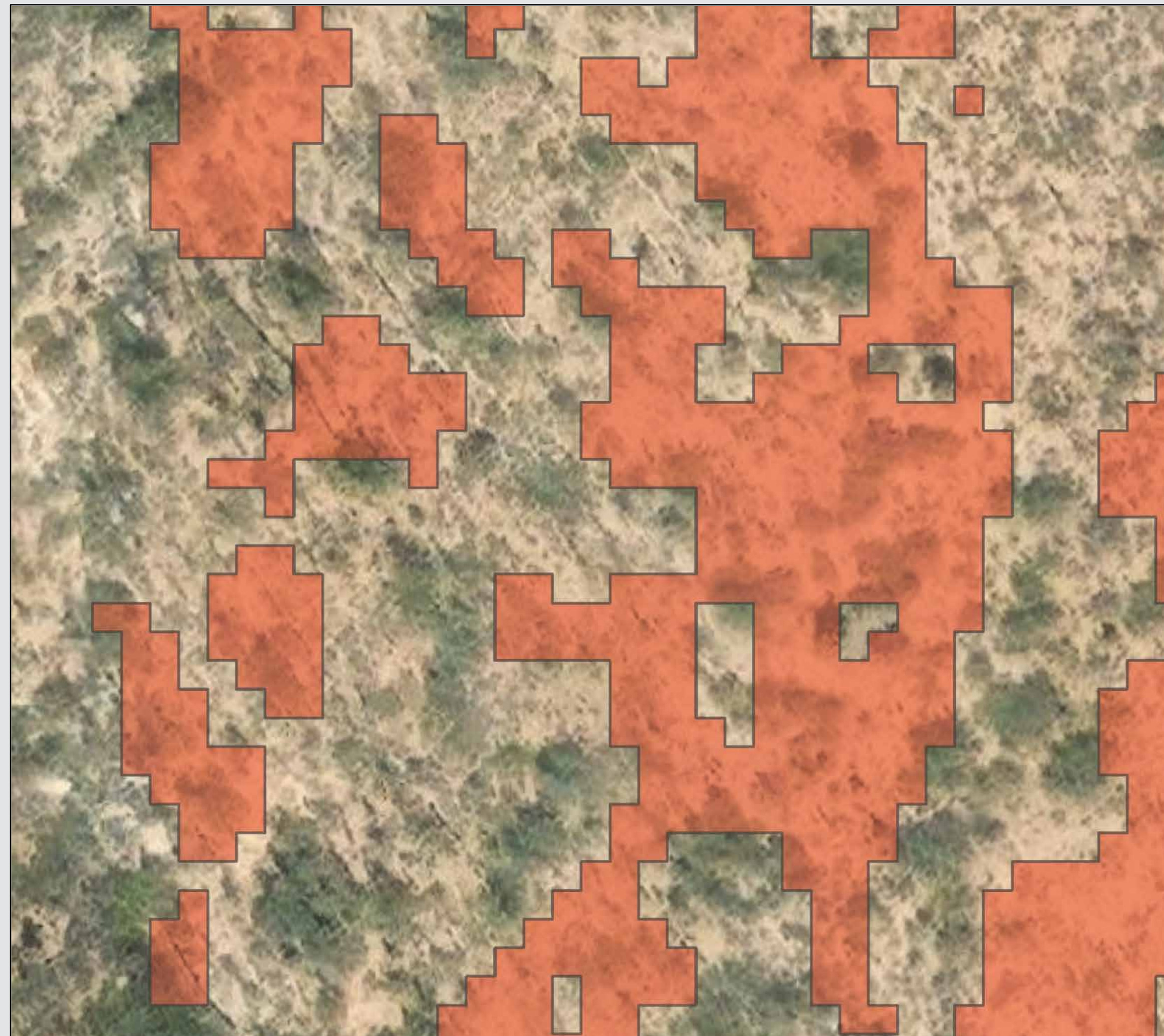
Advanced argillic alteration

Theorised gold mineralization



# Summary

- Continuing to develop targets internally and in partnership with Altius
- Recent collection of hyperspectral data in region not covered by AVIRIS
- All projects available for option or sale
- More details including technical presentations at:  
<https://orogenroyalties.com/project-generation/project-generation/#available-projects>





Questions?





## Transcript – Project Generator Day Webcast September 18, 2024

**Slide 1** - Welcome to Orogen Royalties' inaugural Prospect Generator Day. This event and other events like this that will come in the future are designed to inform our exploration partners, interested technical people, shareholders and investors on projects that have been generated internally and are available for option or sale.

Today, we will showcase our “Silicon Analogues”, early-stage gold projects created using the same methodology that our technical team used when they generated the world class, Expanded-Silicon gold project in Nevada, now owned and operated by AngloGold Ashanti and where Orogen holds a 1% NSR royalty.

**Slide 2** - This is a technical discussion and as with any early-stage exploration project, we will be making some forward-looking statements today.

**Slide 3** - Let me introduce our technical team.



**Slide 4 -** We are going to talk a lot today about the high-level surface expressions of mineral systems and how Orogen are using these to vector into underlying gold systems. This is the approach that was used to identify Silicon and the generative approach the team are currently advancing in Nevada.

Starting with some basics, we are searching for regions of advanced argillic alteration. These are areas of intense alteration caused by highly acidic fluids at shallow depths. They consist of assemblages of kaolinite, dickite, pyrophyllite, alunite and many other minerals. These alteration cells are of interest because they overlie numerous economic mineral deposits and are easy to identify with remote sensing and aerial imagery. However, they form in multiple environments. On this slide, we see the steam cap overlying the Silicon deposit.



**Slide 5 -** There are five key environments where advanced argillic alteration commonly forms; associated with high- and low-sulphidation epithermal gold systems, copper-rich porphyries, but also with weathering. Several of these environments overlie precious metal deposits and others do not.

On this slide we see a schematic representation of a low-sulphidation gold system displaying the shallow expression of a steam cap above disseminated and vein hosted gold. On slide 7, you will see how closely the Silicon cross section resembles this model.

The Orogen team, led by Mark Coolbaugh, has spent the last ten years working on strategies to rapidly distinguish the environments of advanced argillic cap formation to determine which ones are most likely to overlie gold mineralization. These distinctions are based on combinations of mineral assemblage, crystal texture, crystal morphology and associated geochemistry. This allows us to rapidly sort through the advanced argillic systems in Nevada to identify the ones with the best prospectivity for gold.



**Slide 6** - On top of our team's technical skillset, we are privileged at Orogen to have an incredible wealth of data at our fingertips. In Nevada alone we have over 100,000 proprietary geochemical analyses, with an additional 100,000-plus integrated and quality controlled public data points. The database also contains over 5000 PDF project files, two statewide magnetic datasets, and reports from hundreds of past exploration campaigns.

On top of this database, Mark has processed all the AVIRIS data available. This high-resolution spectral data was flown by NASA and covers over half the state. It is available to the public in an unprocessed form, from which Mark has produced atmospherically corrected mineral maps for more than ten minerals as well as multiple crystallinity and strength indexes, allowing us to map the surface of the state.

Combining these data sets into a prospectivity model produces an incredibly powerful exploration tool which has been the basis of an alliance with Altius for the last three years.



**Slide 7-** This data and the resulting exploration work led to the discovery of the Silicon deposit on the Expanded Silicon Project owned and operated by AngloGold Ashanti (AGA), which was first identified as an exploration target by the Orogen team in 2014 due to the presence of a large zone of advanced argillic alteration with a twenty-metre-thick chalcedony blanket. The cell displays no gold at surface.

Orogen completed staking the entirety of the alteration cell in December 2015 after it was released from a government withdrawal. Due to the lack of gold at surface, it took almost three years to find a partner for the project.

Once AGA stepped in, the project advanced rapidly, with the discovery drill hole (SD-004 completed in early 2018) returning 79 metres of 1.76 g/t gold. Follow up drilling in late 2018 and early 2019 added to the story with highlights of 36.6 m @ 12.09 g/t and 13.7 metres at 12.7 g/t and 48.8 m @ 5.8 g/t.

AGA have moved the project forward quickly to a current resource of 4.22 Moz as of December 31<sup>st</sup>, 2022. The mineralization closely fits the model shown on Slide 5, with high-grade siliceous veins and disseminated mineralization hosted beneath the kaolinite and alunite cell at surface. The introduction of illite marks a sharp increase in gold content.

Follow-on exploration led to the discovery of the Merlin deposit, a contiguous low-sulphidation system to the south of Silicon, which looks to be one of the most significant gold discoveries in North America in more than a decade.



**Slide 8** - The substantial discovery at Merlin, which currently totals 9.05 Moz of Inferred resource, has brought the total resource within Orogen's royalty AOI to 13.3 Moz gold. AGA have commenced a pre-feasibility study with initial indications of 500 Koz annual production over multiple decades.

**Slide 9** - Today we are going to focus on four epithermal prospects in Nevada: three low-sulphidation targets generated within the Altius Alliance and a high-sulphidation system. All these projects are available for option or sale.

**Slide 10** - We start with Hot Tip, a low-sulphidation epithermal target staked by Orogen in 2023 that is thought to be nearly fully preserved like Silicon. Recent hyperspectral mapping by Orogen has identified the core of this system for the first time. Hot Tip is in the Pancake Range at the southern end of a twenty-kilometre-long zone of hydrothermal alteration which also encompasses the historical Silverton district on its northern end. In the photo on this slide, you can see the center of the alteration cell at Hot Tip, which projects under cover towards the horizon.

Hot Tip is road accessible, 120 kilometres northeast of the town of Tonopah and covers nine square kilometres of BLM ground.



**Slide 11** - The cell at Hot Tip consists of gold-poor advanced argillic alteration that Orogen interprets as a steam cap overlying possible gold and silver mineralization at depth. The cell is large, with a kaolinite zone measuring about five kilometres in diameter and a central zone of alunite-pyrite alteration. This zone is centered on a graben which we believe is the main structural control of the system and along which epithermal fluids may have risen, boiled, and deposited precious metals. Intense silicification is widespread in areas adjacent to the central alunite-pyrite core.

The alteration cell dives under cover to the south, but after three kilometres, outcrops of bleached, silicified rhyolite with visible cinnabar emerge from the alluvium, indicating the district-scale potential of the target. There is widespread geochemical anomalism on the property, with select assays of over 1% arsenic and antimony, hundreds of ppm mercury, and low-level gold anomalism. Hot Tip is a large, metal-rich hydrothermal system—and the main controlling structures have not been tested by previous exploration.



**Slide 12** - An additional feature at Hot Tip is a large chargeability anomaly that corresponds to, and extends beyond, the central zone of alunite-pyrite alteration. The outcropping area of this alteration is only about a kilometre by four hundred meters, but the coincident chargeability anomaly extends over an area of one kilometre by two kilometres and is tightly situated within the main graben. This adds significant size and coherency to the most intense part of the system. Although historical drilling did not test this area, drilling did test jasperoids west of the chargeable alunite-pyrite core, and intercepted anomalous gold, including 24 metres at 0.38 grams per tonne. We consider this intercept encouraging because it lies in the peripheral parts of the alteration cell.

**Slide 13** - The principal target at Hot Tip is the untested central core of the hydrothermal system. The strongest alteration likely overlies an upwelling zone or area of concentrated hydrothermal fluid flow and possible ore deposition. The projection of the graben and alteration under cover expands the blue-sky potential significantly. Given the size of the alteration cell and significant geochemical anomalies within it, the team considers the centre of the system to be a compelling target. This is not dissimilar to the rationale which led to the staking of Silicon nearly ten years ago.



**Slide 14 -** The Celts property is located thirteen kilometres northeast of the historic high-sulphidation Goldfield district and one hundred kilometres northwest of the Silicon discovery. Celts contains a cell of advanced argillic alteration that resembles the high-sulphidation environment in the Goldfield district, but the Orogen team has recognized it to be steam-heated alteration within a low-sulphidation system. The steam cap remains untested, perhaps due to being mistaken as a barren peripheral extension of the Goldfield district by previous groups.

**Slide 15 -** The alteration cell at Celts is centered on a Tertiary rhyolite dome with an eight hundred-metre-diameter zone of advanced argillic alteration composed of alunite and kaolinite interspersed with regions of fine-grained silica flooding. The rhyolite dome is interpreted to have extruded at the current level of exposure due to a preserved peripheral tuff ring. Celts could be one of the few epithermal systems in Nevada associated with slab window magmatism, like Silicon and Merlin.

Also, like Silicon, there is no gold at surface in the steam cap, but peripheral gold, including grab samples of up to 33 g/t, occurs in quartz veins associated with illite and adularia at lower elevations one to two kilometres from the dome. Additionally, shallow historical drilling near the Gold Button shaft returned 4.1 ppm gold over a length of one and a half metres .



**Slide 16** - Within the rhyolite dome, flow banding steepens towards a central north-south corridor that was likely the magmatic vent during dome formation. The same corridor contains the strongest alunite alteration, indicating that it was also a conduit for steam released from boiling hydrothermal fluids.

The alunite is fine-grained, end-member potassium-rich alunite, and is associated with fine-grained kaolinite and opaline to chalcedonic silica, consistent with formation at shallow levels in a steam cap.

This area is a principal structural target for drilling. Taken together, the central steam cap and peripheral gold-bearing mineralized structures define a four-square-kilometre play.

**Slide 17** - The Celts property contains high-level steam cap exposures and has the potential to host low-sulphidation gold mineralization at depth, as evidenced by peripheral gold showings in topographic lows.

Orogen envisions a target at Celts consisting of structurally controlled zones at depth beneath advanced argillic alteration, with the surrounding mafic volcanics acting as an impermeable cap to the mineralizing fluid, such that the gold mineralization may cover a much greater area than the steam cap.

The property is on road-accessible BLM land with a clear and unencumbered pathway to drill testing.



**Slide 18** - Nevada is a mature jurisdiction where exposed veins at surface have been explored and exploited for decades, hence necessitating the need for advanced exploration strategies using the mineral systems approach that identified Silicon, Hot Tip and Celts. However, in rare circumstances, geopolitics creates opportunities to stake bonanza grade, undrilled veins at surface. Firenze is an example of that. Located 170 kilometre east of Reno, the ninety claims are on BLM ground with excellent road access.

**Slide 19** - At Firenze, the Orogen technical team identified an opportunity to stake a one and a half square-kilometre zone of outcropping gold-rich epithermal veins which had recently been released from a Wilderness Study Area (WSA). Minor artisanal production occurred after discovery of the veins in the 1860s, but they were never drilled-tested, as Firenze had been in a WSA since 1980, impeding drilling and project advancement. Firenze was released in December 2022 and staked shortly thereafter by the Reno-based team.

Sampling of the bonanza-grade vein material from historical workings returned up to 43.9 g/t Au with 534 g/t Ag and 22.5 g/t Au with 1825 g/t Ag. The outcropping quartz-adularia veins are up to one and a half metres wide, occur with illite, kaolinite, acanthite, and silver sulfosalts, and are hosted within a rhyolitic intracaldera tuff. These geological characteristics are typical of the boiling zones of epithermal systems.

Veins, precious metal grades and alteration mineralogy extend up to the contact with post-mineral alluvium to the east and presumably extend under cover. An upthrown horst block east of the Firenze veins indicates cover is shallow for a distance of at least a kilometre and a half out into the pediment.



**Slide 20 -** The shallow alluvium hosts an accommodation zone developed in basin-bounding faults east of the outcropping veins. Several of these faults have Quaternary motion but considering the maturity of the basin and range topography, the faults are likely to have been active during the Tertiary. This zone may be the primary structural control at the core of the epithermal system, with the outcropping veins representing the lateral, outlying parts of the system. This is similar to the setting of the high-grade Sleeper deposit in Nevada discovered in the 1980's, which was under shallow alluvial cover next to alteration and mineralization exposed in the Slumbering Hills. The Sleeper deposit produced nearly 1.7 Moz of gold from 1986 to 1996 from famously high-grade veins and surrounding stockworks.

**Slide 21** - Orogen envisions the potential for blind high-grade gold veins and disseminated mineralization in this untested structural zone, as well as at depth in the area of outcropping veins. Exploration of the veins could be rapidly advanced because they occur on BLM ground with excellent infrastructure and access.



**Slide 22** - As discussed at the start of this presentation, Orogen's technical team have spent the last decade learning how to distinguish between styles of advanced argillic alteration associated with gold mineralization. Up to now in this presentation, we've focused on cells associated with low-sulphidation gold systems like Silicon. In other cases, cells can indicate the potential for high-sulphidation gold mineralization hosted by quartz and alunite. These systems have similarities to low-sulphidation systems but merit a different exploration approach. You can see typical high-sulphidation alteration in this photo from Pearl String, which shows strong advanced argillic alteration and contains narrow structures that run up to 12 g/t gold.

Pearl String is a data-rich project with multiple layers of geophysics, framework drilling, and a robust, drill-ready target concept.

The project consists of 201 claims covering approximately seventeen square kilometres of BLM ground located 150 kilometres southeast of Reno and 30 kilometres north of the town of Hawthorne.

**Slide 23** - At Pearl String, Orogen's claim position covers the northwestern portion of a twenty-five-kilometre long trend of twenty million year old advanced argillic alteration. The alteration trend displays widespread gold anomalism, and at its southern tip, Fortitude Gold is actively producing from the high-sulphidation Isabella-Pearl mine. The region has been dissected by multiple post-mineral faults, including the dextral Gumdrops fault, which is an important feature at Pearl String. A new model of post-mineral faulting, based on work by the Orogen team, indicates the potential for a multi-million-ounce target beneath alluvial cover at the north end of the property.

**Slide 24** - Alteration at Pearl String is controlled by northwest-trending normal faults but has also been offset by post-mineral faults with similar orientations. Post-mineral faults include relatively young right-lateral strike-slip structures associated with Walker Lane deformation studied in detail, most notably the Gumdrops fault. However, they also include concealed, post-mineral normal faults that are older than the strike-slip structures and whose importance has only been recently clarified due to new constraints from drilling by a previous partner.

An attempt to undo post-mineral faulting illustrates that the Chukar Ridge area, which is strongly altered and has high-grade, structurally controlled gold mineralization, restores to the north and west beneath post-mineral cover. This area, which constitutes Orogen's main target, is also surrounded by strongly altered outcrops and anomalous gold.



**Slide 25** - This slide conceptually illustrates the structural model proposed by Orogen. After the initial formation of the postulated high-sulphidation system, which was controlled by northwest-striking normal faults, post-mineral offsets occurred along the same structures.

Normal offsets of mineralization are evidenced by the truncation of alteration along intermediate-angle structures and by variations in the depth of the Tertiary-Mesozoic unconformity encountered in drilling. After normal faulting, approximately seven kilometres of post-mineral dextral offset occurred along the Gumdrops fault.

This gives rise to a previously unrecognized concept that the alteration at Chukar Ridge may be an offset portion of a larger deposit, the majority of which remains under post-mineral cover to the north, and that the high-grade gold occurrences at Chukar ridge may constitute offset splays of the principal feeder structure.

**Slide 26** -The target concept at Pearl String can be distilled down to a few key observations. The target area of post-mineral alluvium is surrounded by strong advanced argillic alteration, suggesting that alteration extends under cover. This is supported by a subdued magnetic signature consistent with hydrothermal alteration. Historical drilling to the northwest returned an intercept of twelve meters of 0.46 ppm, which may represent mineralization in the peripheral part of a high-sulphidation system. Interestingly, strong alteration and high-grade gold mineralization to the southeast are predicted to restore beneath this post-mineral cover, indicating that this could be the heart of the system that has produced widespread gold anomalism in the area.

An accurate understanding of post-mineral faulting is a critical component of exploration success in Nevada—as evidenced by major districts like Cortez and Yerington—and we believe this new structural approach could unlock the next discovery.

**Slide 27** - This slide displays a cross-sectional view illustrating the scale of the target discussed on the previous slide. The potential exists for a multi-million ounce, high-sulphidation deposit similar in size and grade to Salares Norte in Chile or Paradise Peak nearby in Nevada, and the target could be evaluated with an efficient and easy-to-permit truck-mounted drill program.



**Slide 28** - Orogen's Reno-based technical team are continuing to develop epithermal targets in Nevada in partnership with Altius minerals. In addition to these targets, an exciting new project is evolving, based on the acquisition of new high resolution spectral data in a remote corner of the western United States not covered by the historic AVIRIS. This work has identified several large undrilled alteration cells, and the team are excited to get on the ground in the coming days to advance these targets.

We believe demand for these targets is going to increase as AGA continues to advance the Silicon-Merlin target with twelve drill rigs on site focused on enhancing the modelled mineralization and as the full magnitude of the opportunity for World-Class epithermal systems within this region becomes more apparent.

Orogen's portfolio represents early-stage drill-ready targets ready for option and sale. More details including full technical presentations can be found on our website.