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**EL9/2019**  
**PARTIAL SURRENDER REPORT, 2025**  
**GRANVILLE HARBOUR**  
**NW TASMANIA**

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**June 2025**

## **EXECUTIVE SUMMARY**

This Partial Surrender report details the partial surrender and work completed on the portion of EL9/2019 Granville Harbour to be surrendered by Spero Mining Pty Ltd. Spero Mining was acquired by Lode Resources Pty Ltd. during the year with EL9/2019 included in the tenement package. Due to the change of ownership, limited exploration work was completed on the EL.

A tenement reduction is requested with the northern block reduced from 80km<sup>2</sup> to 70km<sup>2</sup>. The area to be relinquished includes the Granville farm and wind farm area.

The area to be surrendered has had no exploration work completed during the tenure of EL9/2019.

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## **1 INTRODUCTION**

This report details exploration activities completed on the portion of EL9/2019, to be surrendered in the final year of tenure. The EL changed ownership during the past year. Consequently, little exploration was undertaken.

### **1.1 Location and Tenure**

EL9/2019 is held by Spero Mining Pty Ltd who purchased the EL off Ten Star Mining in 2024. Spero Mining is a subsidiary of Lode Resources who acquired Spero Mining in 2025. The term of the licence expires on 11<sup>th</sup> June 2026.

The EL is located on the West Coast of Tasmania near Granville Harbour (Figure 1). EL1/2019 comprises 2 blocks with the northern block (80km<sup>2</sup>) centered 24km northwest of Zeehan with main road access from the Heemskirk Road. The southern block (13km<sup>2</sup>) is centered 7km west of Zeehan with access from the Trial Harbour Rd.

Spero Mining also holds mining lease 2M/2018, located within the northern block of EL9/2019.

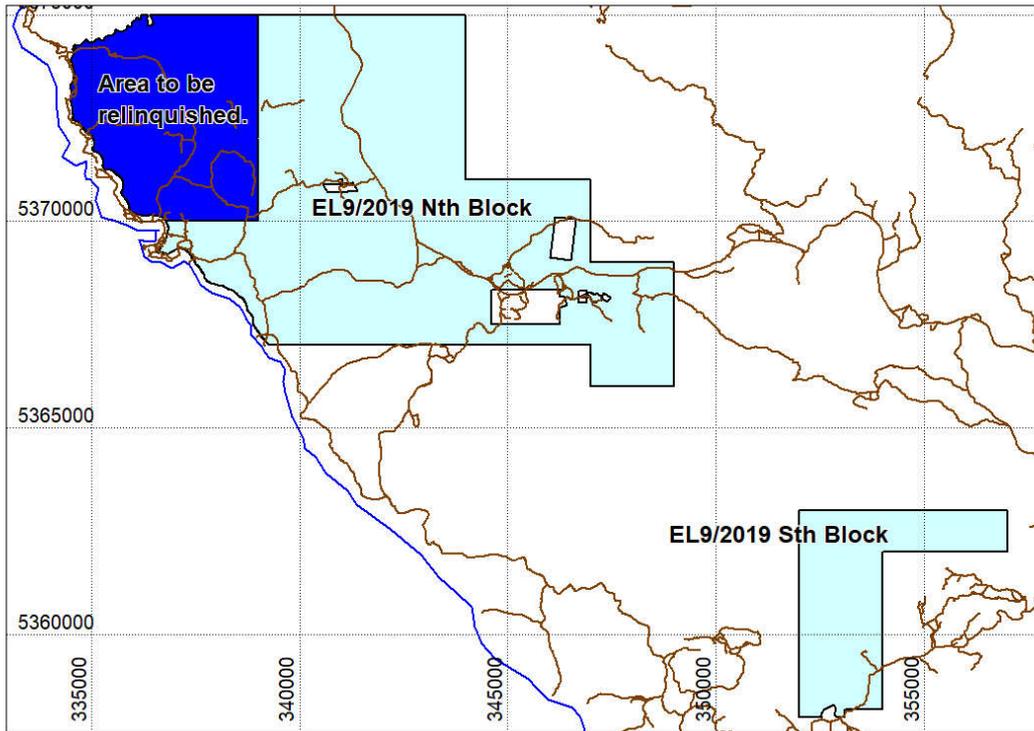
A partial surrender is requested with the northern block to be reduced to 70km<sup>2</sup> (Figure 1). The area to be relinquished is west of 339,000E with eastern northern and southern coordinates of 5,375,000N and 5,370,000N respectively.

Most of the EL area is located on Crown Land with approximately 5% being private agricultural land. The Granville wind farm is located on agricultural land which is to be relinquished from the EL.

### **1.2 Exploration Rationale**

Spero Mining are primarily focused on exploring the tenement for antimony-silver basemetal sulphide mineralisation associated with the Carboniferous Heemskirk granite. The EL is also highly prospective for hard rock magnetite-tin skarns, tin greisens and alluvial tin in Tertiary to Quaternary placer deposits. Alluvial tin mining has been prominent in the area since the 1880's.

EL9/2019 is located close to Ten Star Mining's Granville Processing Plant, a historic tin gravity plant originally developed for processing alluvial Sn in the 1970's.



**Figure 1. Granville EL9/2019, access, tenure and area to be relinquished.**

## 2 GEOLOGY

### 2.1 Regional Geology

The Zeehan district has seen complex deformation, igneous activity and sedimentation from the Late Proterozoic to the present. Basement rocks in Tasmania are dominated by the Late Precambrian Tyennan Element in the east and the Rocky Cape Association of similar age in the northwest.

The NW Tasmanian Geology is separated from the geology of Western Tasmania by the 510Ma Arthur Lineament, a major NNE trending thrust lineament (Figure 2). Regionally the Arthur Lineament separates the northwestern Neoproterozoic Rocky Cape Group and Ahrberg Group from the low strain Oonah Formation to the southeast (Everard *et al*, 2007). The Lefroy Ridge Fault forms the western boundary to the lineament.

The Arthur Metamorphic Lineament (AML) is a steep dipping, NE-SW striking structural lineament of metamorphosed Cambrian mafic volcanics, carbonates and sediments of the Ahrberg Group, the Bowry Formation and a high strain part of the Oonah Formation (Keith Schist). The lineament is associated with isoclinal folding and strong penetrative cleavage generally striking NNE and dipping west (Turner and Bottrill, 1993). The Lineament is folded to an essentially east-west strike just south of the Savage River Mine during the later Devonian Deformation event.

East of the Lefroy Ridge Fault the geology is dominated by metasediments and amphibolites of the AML. The amphibolites occur in the Lucy (magnetic), Nancy, (weakly magnetic) and Bowry Formations (strongly magnetic). The Bowry Formation consists of chloritic, schistose mafic volcanics with interbedded dolomite and magnesite. The Bowry formation is strongly altered with associated banded magnetite-pyrite-silica, reaching maximum intensity at the Savage River Magnetite Mine 20km north of EL2/2018. The western margin of the AML is dominated by the quartz-mica schist and phyllites of the Keith Schist which is gradational with the unmetamorphosed quartz-wacke turbidites of the Oonah Formation.

The Zeehan Basin on the eastern margin of the Dundas Trough was a major control on the pre-Carboniferous geology of the Zeehan District. Around 700Ma a shallow rift basin developed between the northwest and eastern basement blocks. Siliciclastic sediments of the Forest Conglomerate, Donaldson Formation, Timbs Group and Oonah Formation were deposited in the deepening basin. Sag phase siliciclastic sedimentation and carbonate deposition followed and are represented by the Black River Dolomite, Savage Dolomite, Success Creek Group and upper Timbs Group. The Success Creek Group unconformably onlaps the Oonah Formation in the Zeehan district and is marked by a structural and low-grade metamorphic contrast between the two groups (Corbett, 1989). The hiatus in deposition and increased complexity of the Oonah Formation is a result of the late Precambrian Penguin Orogeny.

Continued rifting in the Late Proterozoic (580-550Ma) resulted in the deposition of a thick pile (>5km) of tholeiitic volcanics and associated sediments, carbonate and chert of the Crimson Creek Formation. The Crimson Creek tholeiites have a within-plate geochemical signature (Brown and Jenner, 1989). Correlates of the Crimson Creek Formation occur elsewhere in NW Tasmania outside of the Dundas Trough (Brown, 1986, Brown and Jenner, 1989).

During the Middle Cambrian (515-510Ma) a sequence of mafic-ultramafic complexes were emplaced on the western margin of the Dundas Trough. Ultramafic detritus in clastic rocks suggests they were emplaced high into or above the Crimson Creek Formation and were subject to Middle Cambrian Erosion (Corbett, 1989). Berry and Crawford, (1988) proposed an obduction model for the emplacement of the mafic-ultramafic complexes and associated sedimentary sequences where a forearc terrain was thrust over a passive continental margin.

Post collision extensional tectonics produced troughs into which the Cambrian Dundas Group and Mt Read Volcanics were deposited. The Dundas Group forms a complex sequence of locally derived sediments and volcanics along the western margin of the Dundas Trough. The Mt Read Volcanics (MRV) occupy the eastern margin of the trough with proximal volcanics juxtaposed along the boundary with the Tyennan Block grading into extensive volcano-sedimentary sequences to the west. The MRV hosts numerous volcanogenic base and precious metal rich deposits and prospects, including the world class Rosebery and Hellyer VHMS deposits.

The Late Cambrian Delamerian Orogeny resulted in localised uplift and erosion of the Tyennan Block and subsidence of the Dundas Trough. The Ordovician to Devonian Wurawina Supergroup unconformably fills structural and erosional basins. The succession is divided into the Late Cambrian to Middle Ordovician coarse siliciclastic Denison Group, the Ordovician carbonates of the Gordon Group, and fine siliciclastics of the Silurian to Devonian Eldon Group (Banks and Baillie, 1989).

Variations recorded in the thickness and grain size of the Owen Conglomerate (lower Denison Group) and correlates suggest that deposition occurred as a series of continental alluvial fans formed as piedmont deposits around the margins of the uplifted Tyennan basement block in fault-controlled graben (basin) structures (Corbett and Turner, 1989).

The Owen Conglomerate and correlates are overlain by a unit of well-sorted sandstone (Pioneer Sandstone and Moina Sandstone), representing the upper units of the Denison Group or the base of the overlying Gordon Group.

Conformably overlying and/or interfingering with the Pioneer Sandstone is the Ordovician to Silurian aged Gordon Group (Gordon Limestone) comprising a sequence of transgressive shallow marine to peri tidal platform limestone and dolomitized limestone with minor interbedded siliciclastic/argillaceous units. The Gordon Group is widely distributed across western Tasmania.

Carbonate-hosted stratiform sulphide mineralisation and an associated breccia unit in the Zeehan area indicate local syn-sedimentary faulting and possible carbonate replacement or exhalative activity (Taylor and Mathison, 1990). Carbonates also became an important host for skarn mineralisation associated with Late Devonian-Early Carboniferous granite intrusions.

The Gordon Group carbonates are overlain concordantly, but locally with disconformity by the shallow marine siliciclastic quartz sandstone and mudstone sequences of the Silurian to Early Devonian Eldon Group sediments. The lower part of the Eldon Group succession is dominated by shallow-marine quartz sandstone (Crotty and Florence formations and correlates); the upper by a thick, shelf-facies shale unit with minor limestone (Bell Shale and correlates).

The Middle Devonian Tabberabberan Orogeny has resulted in polyphase deformation with intersecting fold trends forming dome and basin structures and

overprinting relationships (Williams, 1978). Folds are generally upright to steeply inclined with plunging hinge lines. Many faults are steep thrusts and reactivation of Cambrian structures is common. Folding within the Zeehan Basin produced dominantly NNW trending fold hinges. Localised WNW trending folding is located in the Zeehan-Linda zone, possibly associated with the large Firewood Siding and Tenth Legion thrust faults (Williams, 1978).

Several small to medium sized post tectonic I and S type granitoids intrude the early lithologies. Granitoids were emplaced at shallow levels and are dominantly granite or biotite adamellite. Geophysical modelling has indicated the presence of a large ENE-trending ridge of granite linking the Heemskirk and Granite Tor plutons (Leaman and Richardson, 2003).

A number of styles of mineralization are associated with the Carboniferous granitoids including tin-tungsten, lead-zinc-silver (Collins *et al*, 1989) and the recently discovered Avebury Nickel Skarn (Callaghan and Green, 2014).

Cassiterite mineralization is associated with stratabound massive sulphide/magnetite bodies replacing carbonates of the Oonah Formation (Tenth Legion, Queen Hill, St Dizier), Success Creek and Crimson Creek Groups (Renison, Montana). Stockwork and fault related cassiterite-sulphide mineralisation is associated with the Renison and Queen Hill deposits. Disseminated cassiterite is associated with greisenised granite on the southern margin of the Heemskirk Granite (Federation, Globe).

Lead-zinc-silver fissure vein mineralization occurs in haloes around granite bodies. Lead -zinc-silver lodes are typically small such as the numerous deposits of the Zeehan-Dundas field. The two largest Carboniferous granite related Pb-Zn-Ag fissure vein deposits occur outside the Zeehan Field but highlight the potential of the mineralisation style:

Mt Farrell Mine	0.91Mt @ 12.5% Pb, 2.5% Zn and 408g/t Ag
Magnet Mine	0.63Mt @ 7.3% Pb, 7.3% Zn and 427g/t Ag.

Post deformation sedimentation resumed in the Permian with thick, essentially flat lying sequences of mudstone, sandstone and minor carbonates of the Parmeener Supergroup. Minor Jurassic Dolerite sills are present in the Dundas Trough.

Tertiary faulting, basin formation and alkali-olivine basalt extrusion formed the large Macquarie Harbour Graben west of Strahan and basalt flows north of Mt Heemskirk. Surficial Quaternary deposits are widespread, and erosion and deposition continue to modify the landscape.

Tertiary sediments comprise channel fill gravel, sand and clay in ridge top positions generally overlain by basalt. They have been sporadically explored for gold/tin placers with minor historic workings in the district. Gold from the sediments has redistributed into the Quaternary creeks, contaminating heavy mineral stream sediment exploration efforts.

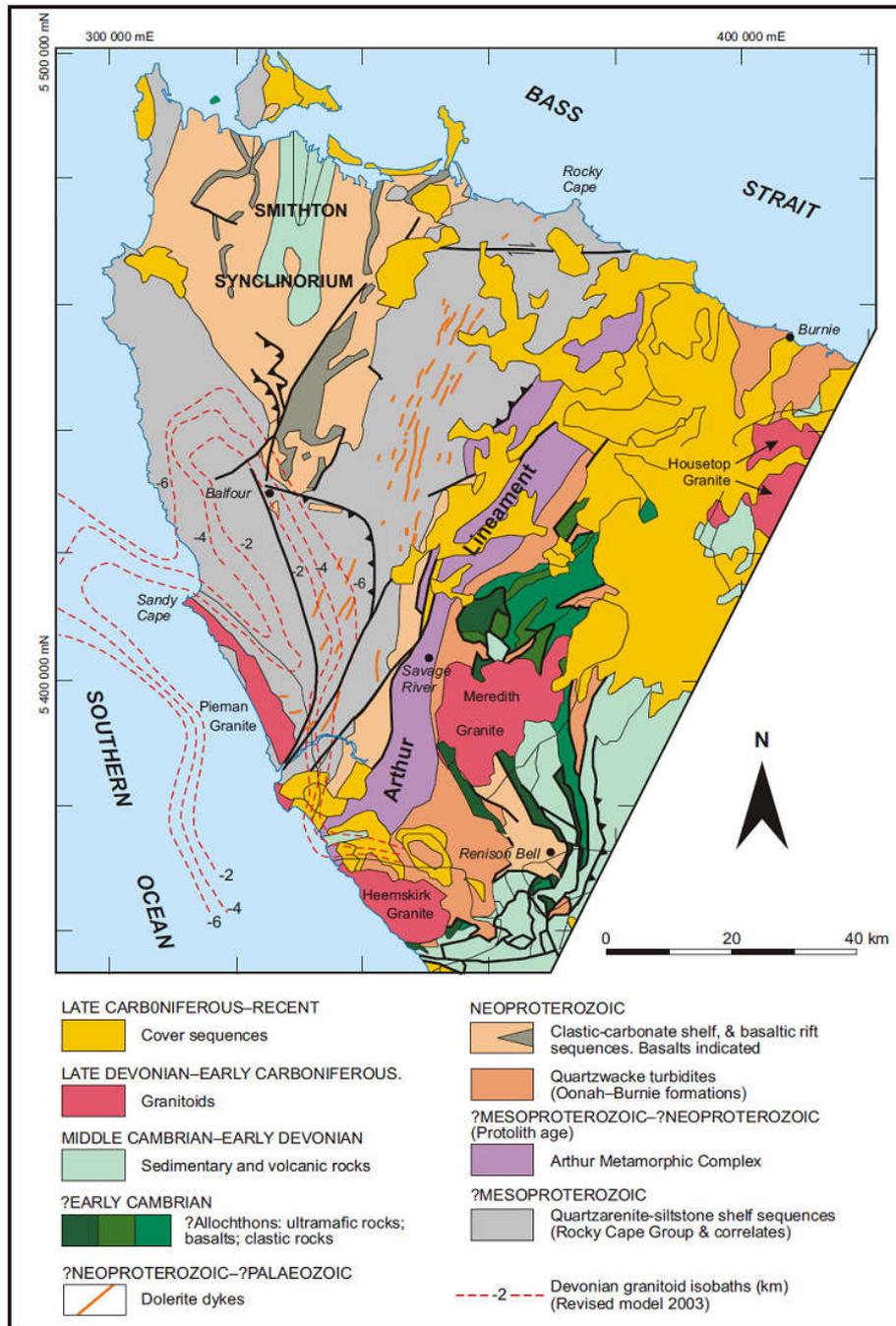


Figure 2. Regional Geology of Northwest Tasmania (Everard et. al., 2007)

## 2.2 Local Geology

EL9/2019 covers the southern end of the Arthur Lineament and the northern and eastern contacts of the Heemskirk Granite (Figure 3 and 4). The Heemskirk Granite has intruded the Proterozoic Oonah Formation.

The northern granite aureole hosts the St. Dizier and Granville magnetite-tin skarn deposit, several other small skarns and magnetic anomalies located within carbonates within the Oonah Formation (Figure 4). The untested magnetic anomalies on the EL are considered prospective for similar tin bearing skarn deposits as the St Dizier skarn.

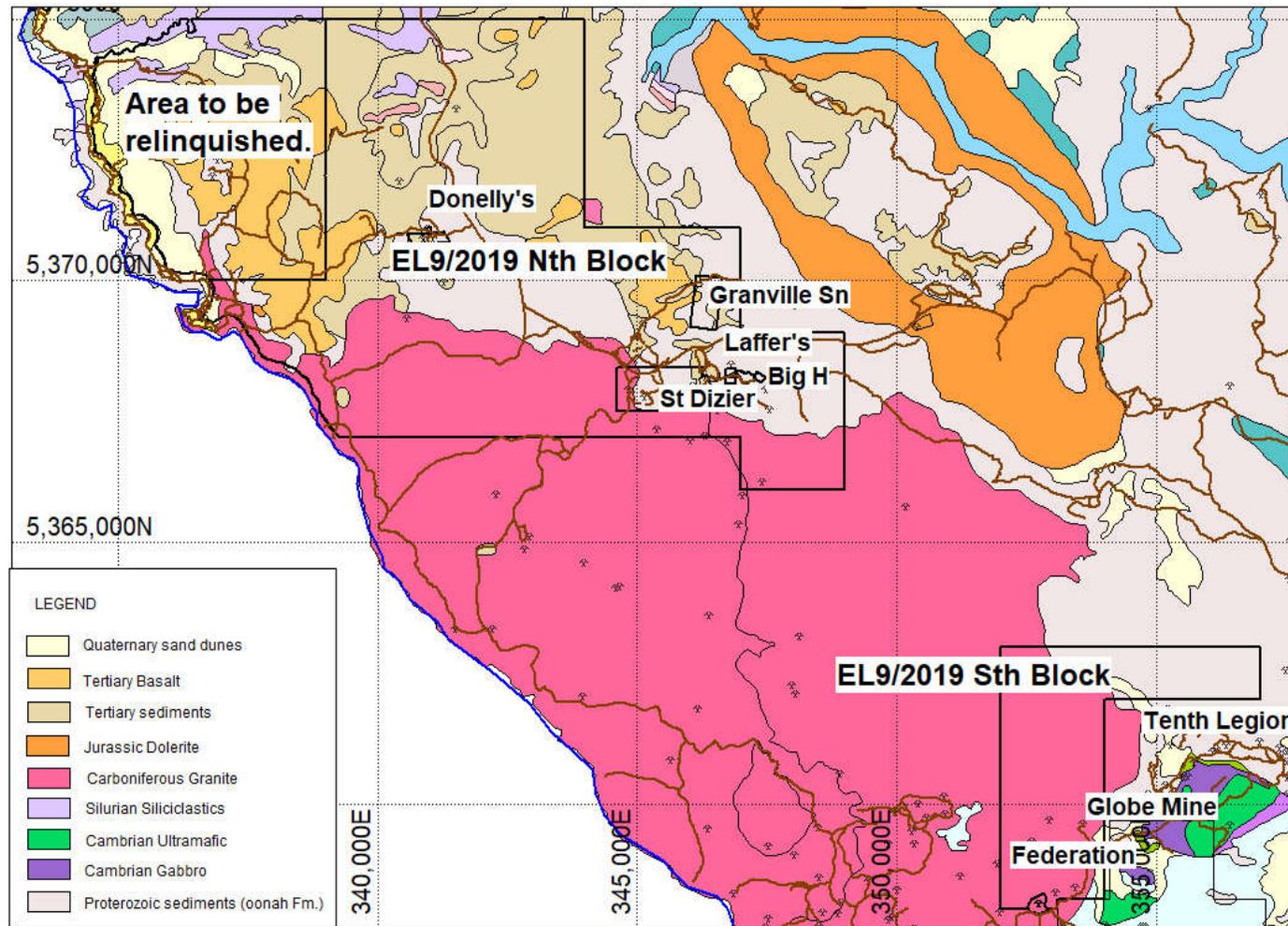


Figure 3. EL9/2019 Local Geology (MRT 1:250k)

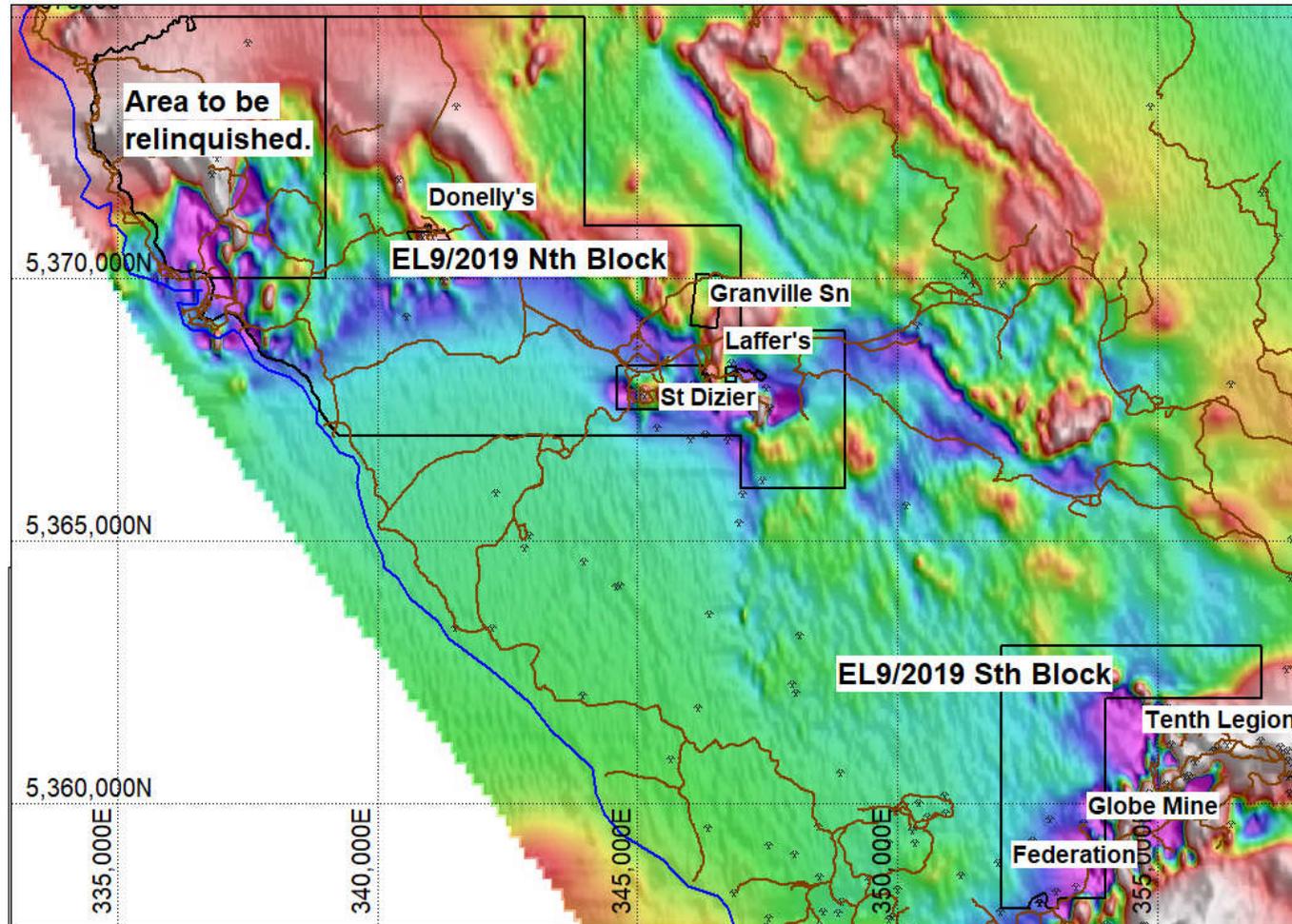


Figure 4. EL9/2019 Total Magnetic Intensity Image.

The Northern EL also contains Tertiary alluvial sediments that have been historically worked for alluvial Sn, particularly the Tasman River and Laffer's workings. The EL remains prospective for this style of mineralisation that has historically fed the Laffer's gravity plant on mine Lease 2M/2018.

The southern block is located on the southern Heemskirk Granite/Oonah Formation contact (Figure 4). Geologically, the licence area covers a sequence of faulted and folded Proterozoic Oonah Formation sediments, Crimson Creek volcanics intruded by the Carboniferous Heemskirk Granite. The granite has two distinct phases known locally as the Red Granite (I Type) and the White Granite (S Type). Tin and silver-basemetal mineralisation is associated with the white granite.

Numerous magnetite skarns are hosted in the Oonah Formation proximal to granite. The largest of these is the Tenth Legion magnetite-tin-tungsten skarn immediately east of the EL9/2019 (Figures 3 and 4).

The southern Heemskirk Granite hosts several small greisen style tin deposits such as the historic Federation, Sweeny's and Globe mines. A number of secondary placer deposits also occur in the area.

### **3 PREVIOUS WORK**

The area covered by EL9/2019 has long been the subject of exploration and mining activity. Details of previous exploration are recorded in previous annual reports.

The major historic areas of mining interest were St Dizier (Sn Magnetite), Tasman (alluvial Sn), Laffer's (alluvial Sn), Kelvin and Maynes workings (Sn veins), the Globe Mine (tin-base metals), the Tenth Legion magnetite deposits and the silver-base metals, vein style deposits in the Stonehenge/Comstock area.

Considerable exploration around the Heemskirk Batholith has been conducted since the 1970's by many exploration and mining companies. Primary targets were tin-tungsten, magnetite, silver rich base metals and the enigmatic Avebury nickel skarn.

#### **4 WORK COMPLETED**

No exploration activity has been completed on the area of EL9/2019 to be surrendered. The area to be surrendered covers the freehold Granville farm and Granville wind farm.

The geology of the area consists of Tertiary basalt and sediments and Quaternary sand dunes overlying Paleozoic basement. There is a large magnetic anomaly within the area to be relinquished.

## **5 ENVIRONMENTAL AND REHABILITATION**

No exploration work requiring rehabilitation was completed on the EL during the tenure period.

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