



Annual Report
for EL40/2011 George River
for the Period 4 July 2013 to 3 July 2014

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Date: June 2014



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ABSTRACT

This report describes the exploration activities completed within EL40/2011 during the period 4 July 2013 to 3 July 2014. This is the second annual report for the second year of grant of the Tenement.

The Tenement is located west of the town of St Helens, and (directly) about 85 km east of Launceston.

The Tenement covers a major past producer alluvial tin mine, and a number of known tin and tungsten deposits in the basement.

There has been a long history of prospecting since the mid 1870s, and mining for alluvial tin was carried out between 1874 and 1962, with a production of about 2400 tonnes of metallic tin. Production of tin and tungsten from the known basement deposits is minor.

In the district the original sources of tin and tungsten were phases of the Devonian tin-bearing granites of the Blue Tier Batholith. Tin occurs as cassiterite in quartz and greisen vein systems in the roof zone of the granites near the contact with overlying Silurian Mathinna Beds.

The company's main focus is exploration for tin and tungsten, in alluvial deposits and in bedrock.

Work completed during the period comprised a continued compilation of past investigations and review of the data to assess the prospectivity. A field visit with rock chip and geochemical sampling was carried out.

The area is assessed to be highly prospective for several styles of mineralisation, and a number of target areas are generated.

KEYWORDS

NE Tasmania
 Geology
 Mineralisation
 Alluvial
 Paleochannel
 Leads
 Primary Deposits
 Granite
 Mathinna Group
 Tin
 Tungsten
 Exploration Targets

**SUMMARY OF ACTIVITIES for EL40/2011 George River
 for the Period 4 July 2013 to 3 July 2014**

- Thorough compilation of previous company exploration
- Plotting previous exploration grid locations, pan concentrate sampling, soil sampling, and drilling in mapinfo format
- Re-evaluating the MRT database of past stream sediment geochemical exploration
- Sampling in one area of prior generated tungsten anomalism
- Field traverse of the Blue Tier to Launceston Creek area.
- Field reconnaissance visit to mined alluvial areas near Thureau's deep lead.
- Determine the distribution and nature of known mineral deposits
- Assess the prospectivity for untested or undiscovered alluvial tin and basement tin and tungsten mineralisation.
- Generate targets for future work.

CO-ORDINATES

All lat/long co-ordinates in this report refer to the GDA94 Datum, unless stated otherwise.

All AMG co-ordinates in this report refer to the GDA94 - Zone55, unless stated otherwise.

FILE SUMMARY LIST

File name	Format	Contents
EL402012_2014_01_report.pdf	Pdf	Annual Report
EL40-2011_drainage_rock_analyses_2014_WASG3.txt	Text	Sample analyses, descriptions

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1.0 INTRODUCTION

This report describes the exploration activities completed within EL40/2011 (The 'Tenement') during the period 4 July 2013 to 3 July 2014. This is the second annual report for the second year of grant of the Tenement.

For Tin Dragon's convenience the project is named "Mt Echo", rather than the MRT designator of Georges River.

The Tenement is located west of the town of St Helens, and (directly) about 85 km east of Launceston, in north-east Tasmania, Fig.1.

Table 1 – Tenement Details

Tenement	Holder	Date Applied	Date Granted	Size
EL40/2011 Georges River	Tin Dragon Pty Ltd 100%	7 July 2011	4 July 2012 (Categories 1 and 5)	180km ²

Excluded from the grant of the tenement are one small mining lease for stone and gravel near Girdy's Hill, small private land holdings at Ericksons Road and Pyengana, and a State Reserve downstream of St Columba Falls, as illustrated on Fig 2.

Much of the land within the south and east parts of the Tenement, where the bulk of known mineralisation occurs, is logged state forest, timber plantation and timber reserves. Private farming land, particularly for diary cattle, is concentrated in the western parts of the Tenement.

The project lies within the Tasmania NE (SK55-21) 1:250,000 map sheet, and the 1:25,000 map sheets of Ringarooma, Blue Tier, Victoria, Pyengana, St Helens, Brilliant and Beamauris, as shown on Fig 3.

Access is via the Tasman Highway and several sealed roads. Formed local roads and logging tracks and other rough tracks provide further access.

The tenement covers past producer alluvial tin mines and several small tin and tungsten deposits in the basement. The most significant past production of an estimated 2400 tonnes of metallic tin was from alluvials of Thureau's lead. Only minor production of tin and tungsten from basement deposits is recorded.

The company's main focus is exploration for tin, in alluvial deposits and in bedrock, and for tungsten deposits in bedrock.

Work completed during the period comprised a further compilation of past work to reappraise the potential for tin and tungsten deposits in alluvial and basement deposits, and

generate specific targets for future work. A field visit appraised the general target area and rock chips/ stream sediment sampling was done.

2.0 GEOLOGICAL SETTING and MINERALISATION

Basement rocks are dominantly Silurian-Devonian Mathinna Group metasimentary rocks (Beds), intruded by various phases of Devonian granites.

The Mathinna Beds typically consist of an alternating sequence of bedded sandstones up to 10m thick and siltstones and shales up to 5m thick. The arenaceous members are the dominant lithological types and in part they have suffered low grade contact metamorphism to quartzites and slates. The succession was folded during the Tabberabberan Orogeny into open folds trending NNW. Major faults and shear zones also trend NNW and the centres of mineralisation are often located on major shears. Further comments on faulting and fracturing appear in Section 12.0, and fault-fracture patterns are plotted on Fig 9.

Several phases of the Devonian Blue Tier Batholith occur in this area, Figs 4 & 5. Some phases, especially the Constable Creek sheet of the Mt Pearson (Mt Pierson in Groves GSB55) phase are tin-bearing biotite muscovite granites. The Constable Creek sheet is described by Groves (1977) as rarely fresh, flat lying composite body of microgranites, biotite granites and adamellites, with miarolitic cavities, pegmatitic patches, tourmaline veins. In the sheet at the Echo Mine there is a mineralised greisen.

Judging by the location of the main alluvial tin deposits in the area, the source of cassiterite is likely to be the eroded parts of the Constable Creek sheet.

There is a metal zonation of mineral deposits in the area, (Groves, 1972,) Fig 6. Adjacent to the outcrop of the Constable Creek sheet is a tungsten zone followed to the SE by a tin zone containing the major Great Pyramid deposit (outside the Licence area). A strong N-S copper zone is then followed to the east by a silver-lead-zinc zone.

Basement mineralisation, of tin, tungsten and copper is typically hosted in quartz veins/ fractures/ shears in the Mathinna Beds and scattered greisen-altered fractures in the granites. The largest known deposit is Great Pyramid, to the south of the Tenement. A resource, potentially open-pittable from surface, of 3.3Mt @ 0.2% Sn (0.1% cut-off) has been previously estimated by Shell, and in early 2014 Niuminco released a JORC Inferred Resource of 1.3 million tonnes at 0.3% Sn. Mathinna Group quartzites are the main host rock and cassiterite occurs in sheeted micro-veinlets along joints.

The main basement mines and prospects in the Tenement are reviewed separately in Section 6.0.

The Tertiary alluvial history is complex and not well studied. Stanniferous alluvium is present in a number of places, and the main such deposit is the Thureau's Lead.

The relevant placer history of the region is better known further north in the Pioneer-Gladstone area, and is likely to be similar here. It commenced in Permo-Triassic time (ca 250Ma) with the unroofing and erosion of the granitic rocks. In late Jurassic time (ca 150Ma) further uplift occurred with intrusion of extensive igneous dolerite sheets followed by a long period in the Late Cretaceous (ca 75Ma) of widespread and intense erosion. Deep

weathering of the granites during this period resulted in liberation of large amounts of cassiterite from the granitic hosts and their deposition in alluvium of the streams draining the highlands.

During Middle Eocene time (ca 46Ma) volcanic activity commenced along the Blue Tier with the extrusion of the Older Basaltic lava flows. It is likely that these were emplaced along stream valleys incised into the pre-Eocene granitic land surface, and so buried the older alluvial cassiterite deposits.

From the Mid Eocene to Late Oligocene (ca 46 to 24Ma) uplift and a humid tropical climate resulted in rapid erosion of the basalts, and renewed liberation of cassiterite from granites and reworking and upgrading of the earlier pre Middle Eocene alluvial deposits. The Middle Miocene (ca 14Ma) saw a second period of basaltic volcanism with extensive lava flows down many of the larger valleys in the Derby area.

Post Middle Miocene to Recent alluvial deposits were then formed along the alluvial flats of the major rivers.

In areas closer to the present coast there were marine incursions which have reworked the earlier alluvials.

Further observations on the alluvial deposits and their geological history are in Section 7 of this report.

In summary there has been a complex history of placer formation involving reworking and reconcentration of cassiterite.

3.0 REVIEW OF PREVIOUS WORK

In the first annual reporting period previous work by other organisations was only briefly reviewed, so the prime task this period was to complete a thorough review in order to identify areas which have been thoroughly explored or areas which have been neglected.

Tin was discovered in the Blue Tier to the northwest of the Tenement and near St Helens in 1874, and by the 1890s workings for alluvial tin, especially at Thureau's Lead, had been well established. Thureau's was worked intermittently up until 1962. The last companies to operate here were the Siamese Tin Syndicate Ltd from 1933-1939 and the Goshen Tin Mines NL from 1939 to 1962.

Aided by good outcrop exposure in the Loila Tier area, primary basement mineralisation was progressively discovered by prospectors, so that by 1900 most of the known deposits had been found, but few to the present day have been worked to any significant extent.

Previous company exploration in summary has been by Mt. Lyell Railway Co. (Pre 1950s), Rio Tinto Zinc Co. (1956 -1958), Austminex (1960s), Utah Development Co (1963 -1966), Broken Hill Proprietary Ltd. (1960s 1980s), Aberfoyle Development Co (mid 1960s), New Consolidated Gold Fields (Australasia) Pty Ltd (late 1960s), Texins Development Pty. Ltd (Geophoto) (1968 -1970), CSR Exploration (1978-1983) and Shell (1983-1986).

Only the work done by Texins, CSR, BHP (in the 1980s) and Shell is significant, so their work within or close to the Tin Dragon Tenement has been thoroughly reviewed. Notes on each company's program and results follow, listing by MRT's open file report numbers:-

TEXINS (by GEOPHOTO) within EL6&7/1968

69_0547

- Preliminary appraisals, some descriptions of mines/prospects.

69_0595

- Stream sed geochem in progress, analyses for Cu Pb Zn Ag Bi Mo, but not Sn W.

69_0597

- Constable Creek (Echo) cobra drilling (lightweight portable rig – cores to 4m), not all analyses to hand, poor location map.

70_0624

- Upper Scamander grid- (Too easily confused with areas to the south of the Tin Dragon tenement, so I have named it Haley's Creek area elsewhere in this report). Soil samples, Cu Pb Zn Ag only. Weak Cu anomalism to 180ppm, plan is in yard grid, also shows two line IP survey, not discussed.

70_0649

- Upper Scamander- some geological mapping.

70_0677

- Stream sed sampling extensive but W and Sn usefulness very limited by high detection limits of 500ppm.
- Map well annotated with geological features at Prices, which they called Carson De Beers, Baden Powell, and upper Wolfram Creek area.

70_0690

- Copper Show Ck grid, 2 lines just south of Tin Dragon tenement.
- Description and analyses of mineralisation, Cu-Pb-As rich, and of workings

70_0699

- Upper Scamander- results of IP survey- rather inconclusive weak responses- and more IP is recommended.

70_0701

- Constables Ck (Echo)- geological mapping, exposed granite cupola surrounded by Mathinna beds. Map shows the previous cobra drilling but is not georeferenced.
- Constables Ck- three diamond drill holes, 138m, 65m & 90m deep, two holes were beneath veining, close together and another 600m south. Best, DDH1: Vein of 0.7m @ 0.3%Sn, DDH2 max 0.1%Sn and 0.1%WO₃, DDH3 vein with 0.2%WO₃.
- Constables Ck grid soil samples, no plotted map of analyses, but detection limits for W were 100ppm and for Sn 500ppm, yielding a few scattered values up to 200ppm for W and 1300ppm for Sn. The data is not worth plotting because of these high DLs and because grid is not georeferenced.

71_0818

- Constables Ck- two more diamond drill holes, making a total of 4 holes collared in granite, and only DDH5 collared in metaseds. Best, DDH4 and 5: 0.08%Sn. Concluded that the cupola is 'denuded' of mineralisation.

71_0819

- Upper Scamander- Diamond drill hole 2 (hole 1 abandoned, so 2 a redrill), testing an area with anomalous Cu in soils, weak IP response, to 208m, angled 60degrees NE, in Mathinna shale, siltstone, quartzite, granite not intersected but expected. Minor fracturing and weak veining with rare chalcopyrite and galena. Peak 500ppm Cu, 1200ppm Zn, 300ppm Pb; W and Sn not recorded nor analysed.

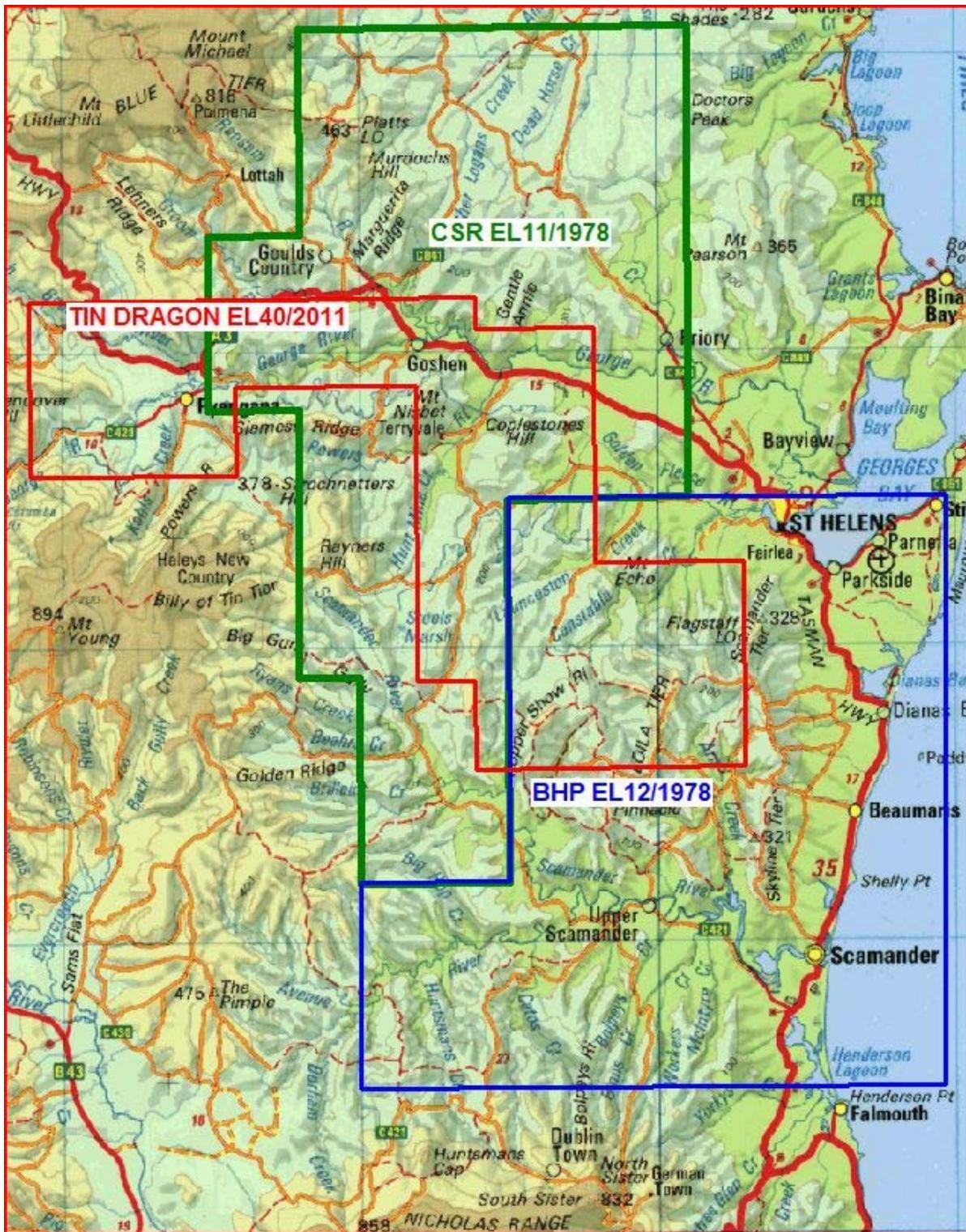
72_0885

- Upper Scamander- more IP surveying. Anomalies are described but not plotted on plan.

72_0907

- Wolfram Ck- Geol mapping, granite with roof pendants of Mathinna bed metasediments. Granite tourmaline rich, locally pegmatitic, and scattered qtz-greisen veins

- Wolfram Ck- Soil sampling, -20#, 60m spacing for area 490m x 730m, yielded almost whole area >200ppm Sn, peaking at 0.14%, W all less the DL of 200 ppm
- Wolfram Ck -21 Cobra percussion holes in an arcuate area 300m across, each 1.5m deep, max 0.15% Sn, 7 holes exceed 0.1%.



Location of prior Exploration Licences

CSR within EL11/1978

79_1407

- Production data compiled for Thureau's Lead, page 114145 (MRT pagination)
- Orientation soil geochem, Stream sed and soils at Wolfram Ck from North of Baden Powell to south of Carson-DeBeers: the -20# fraction best for Sn and W.
- Alluvial tin targets: early miners avoided marshy areas because of high clay content:
- Steeles Marsh (only partly within Tin Dragon tenement): unspecified number of auger holes intersected clay to 5m, with negligible tin.
- Carters Marsh- apparently one hole, not discussed
- Moonlight Marsh grid- investigated because thought representative of Mt Pierson Granite as the source of alluvial Sn
- Moonlight Marsh grid- granite strong fractures jointing all scales, silicified breccia along joints, pyritic fine grained phases, qtz tourmaline veins
- Moonlight Marsh grid- several rock chip of granites etc, best 0.3%Sn
- Moonlight Marsh grid- a 20m wide pegmatitic breccia pipe carries 2% cassiterite in petrographic description but low 30ppm Sn analysis, suggesting erratic distribution.
- Moonlight Marsh grid- -20# soils, at 200m x 200m: best Sn value 300ppm, two others 100ppm, otherwise <30ppm; all W<20ppm, no anomalous responses near mapped qtz-tourmaline veins
- Moonlight Marsh grid- Bulked soils concentrated by panning gave max 100ppmSn
- Stream Sediment sampling, -20# in scattered areas, especially east of Wolfram Ck between Upper Scamander and Copper Show Creek. The sampling technique is unreliable for Sn judging by streams not anomalous returning cassiterite in panning (see below).
- Panning and heavy mineral studies: pan concentrates studied at depth to identify HM suites, scattered, but concentrated east of Wolfram Ck between Upper Scamander and Copper Show Creek. Cassiterite and wolframite/scheelite recorded in a number of places- not plotted by CSR (but I plotted in mapinfo). Of importance because presence of soft wolframite and scheelite must mean a source close by.
- Rock Chip sampling especially Haley's Ck area: (page 114042, and scattered analytical sheets)best result gossanous float on west side (?east?) of ridge commencing 594200E/5416000N (AGD66 Z55) trending NNW for 900m carries 0.1 to 0.3% Sn. Other poorly described ?qtz-tourmaline veins occur within a 1.5km radius carry up to 0.3%Sn, and at Copper Show Ck a trench/shaft at 594600E/5416100N with arsenopyrite veining carried up to 0.3%Sn.

80_1482

- Ferntree Hill/ Carters Ck: Greisen zones discovered in area of old sluiced workings. Best rock chip 750ppm Sn
- Gridding and soil sampling commenced

81_1630

- Plan with plotted geophoto stream sed samples
- Ferntree Hill/ Carters Ck sampling/ gridding continued.

82-1683 - A partial Relinquishment report.

82_1765

- Ferntree Hill grid soils – all sampling available, extensive anomalism >50ppm Sn, best 390ppm. I have plotted locations in mapinfo
- Percussion drilling finds greisen to be less than 30m thick, but analyses not yet available.

83_1990

- Ferntree Hill drilling: 10 holes, 40m depth, max 760ppm Sn, mostly much less. Best rock chip nearby 2300ppm. Fine grained adamellite below greisen also weakly mineralised.
- Ferntree Hill and limited samples elsewhere: Extensive petrographic summary descriptions. One reports 10% magnetite and one is a quartzite.

BHP within EL12/1978

79_1377

- Stream sed geochem -40# Sn W etc

79_1394

- Airborne magnetics-good quality still at 2014

80_1444

- Stream sed geochem analyses not received – see 82_1680

82_1680

- Stream sed geochem -80# this time (prev -40#) Sn W etc –all in MRT database
- Rock chip sampling “Nevada –Wolfram Ck Area” which is generally east of Mt Echo and south to the boundary of Tin Dragon tenement.
- See p894117 for drill hole results in mag anomaly at North Scamander Project- 3 diamond holes about 100m apart each to about 200m deep, intersected bx zones and qtz stringers with pyrrhotite and magnetite, with up to 0.5% Sn, but this was acknowledged as an insufficient test. Note that this mag feature and that at Great Pyramid correspond to magnetite-pyrrhotite alteration with Sn, so mag features in Mathinna Beds are prime targets.

82_1761

- Some geol mapping along tracks creeks Echo-Constable Ck to Baden Powell
- Several grid lines, with soil sampling, in same area as above and at Cramps

- Stream sed geochem, this time -40# again!

SHELL (Billiton) within EL12/1978

83_2059

- Stream Sed orientation
- Stream sed sampling, -20# for Sn W etc
- Useful summary of previous expln map

84_2201

- Part Relinquishment report- area relinquished is mostly south of Tin Dragon tenement.
- Grid soil results GT4-GT9 grid east of Echo

84_2218

- Granite mapping see p342017
- Alluvial history p342021- notes Quaternary alluv has pebbles of veined Mathinna beds suggesting from roof zone of Mt Pierson Pluton generally now eroded.
- Lineament study
- Prospect evaluation p342022, generalisations of mineralisation styles, details in Appendix 4
- Loila Tier Grid p342033
- Best models targets p342024
- Fig 9 Wolfram Ck specialised granite
- Fig 13 Yiangxi model
- Fig 14 Metal zonation and styles
- MSc thesis by G Plummer- supported, on fluid inclusions Great Pyramid and North Scamander, outside Tin Dragon tenement. Conclusions summarized on pages 342266 to 342269.
- Thorough reviews of the following prospects, all of which are included in this report as Appendix A.
 - Echo
 - Silver Echo
 - Baden Powell
 - Carson De Beers (Prices)
 - Loila Tier

85_2467

- Flagstaff ridge and spur sampling in area of stream sed Sn anomalies. Sn to 770ppm, generally 10-75ppm, WO3 to 110ppm
- Flagstaff- Ground mag -weak patchy elevated values, but confirms airmag

- Argus grid – over best geochem of Flagstaff, but no mag expression. Generated 300m X 150m anomalous area Sn>20ppb.
- Argus grid – Geol mapping
- Argus grid – Percussion drillhole PDH AG1 , 144m, all Mathinna beds, max 660 ppm Sn. Seeking Great Pyramid style mineralisation.

86_2588

- Five airmag anomals investigated: Silver Echo, (Wolfram Ck- south of Tin Dragon Tenement), Flagstaff, Cramps.
- Silver Echo grid- well fractured Mathinna beds, max 47ppm Sn, granite nearby and prob at shallow depth.
- Silver Echo grid-soils at 200m x 50m, erratic high Sn values, best 120 and 188 ppm
- Silver Echo grid- geol mapping
- Silver Echo grid-ground mag suggests airmag anomaly sourced at 150m, prob close to granite contact.
- Silver Echo grid- Conclusion: poor soil geochem, lack of well defined vein system, lack of strike extent of mag anomaly, no further work recommended.
- Flagstaff grid- three extra spur lines, generated no significant Sn anomaly. Thus combined with previous year program Flagstaff and Argus were considered not worth further investigation.
- Cramps grid- Not the earlier BHP grid. This one better placed over airmag high. Most of grid is south of Tin Dragon tenement.
- Cramps grid- max rock chip 510ppm Sn, but outside tenement
- Cramps grid- No soil Sn values exceed 50ppm in Tin Dragon area.
- Cramps grid- Diamond drillhole CRD1, about 1.2km south of Tin Dragon tenement. Weak po veining in Mathinna Seds, no significant Sn or W

4.0 EXPLORATION COMPLETED DURING THE REPORT PERIOD

Work done by Tin Dragon during the period consisted of

- Thorough compilation of previous company exploration, as above
- Plotting previous exploration grid locations, pan concentrate sampling, soil sampling, and drilling in mapinfo format
- Re-evaluating the MRT database of past stream sediment geochemical exploration
- Sampling in one area of prior generated tungsten anomalism
- Field traverse of the Blue Tier to Launceston Creek area.
- Field reconnaissance visit to mined alluvial areas near Thureau's deep lead.
- Determine the distribution and nature of known mineral deposits
- Assess the prospectivity for untested or undiscovered alluvial tin and basement tin and tungsten mineralisation.
- Generate targets for future work.

5.0 ALLUVIAL DEPOSITS

The 2013 Annual Report discussed alluvial deposits, including Thureau's lead, and the reader is referred to that report- it is not repeated here.

More data has been located and digested. Some newly accessed data is in Kostoglou (1998), which contains a large 1:25 000 scale plan of alluvial deposits and races, and in Colman (1934) which discusses operations of the Siamese Tin Syndicate in the Golden Fleece Rivulet area.

I made a reconnaissance visit to the alluvial tin mined areas of that area, which is a short distance north of Tin Dragon's tenement, in order to try to understand the alluvial history of the general area. Clearly there is much alluvium quite high on the southern slopes of the valley up to around the 50m RL. Colman observed the same thing. This is old alluvium from an abandoned channel, suggesting that there has been relatively recent uplift of the Mt Echo area to the south, and a shift in the valley north to its present position. Colman observed that this old alluvium sits on top of Thureau's lead. Also notable is that much of the mined alluvium is actually reworked material in modern gullies which cut through that old alluvium.

Abandoned channels on hill tops and sides at ~150m RL are presumably outlined by the Saxelby deposits plotted by Kostoglou.

This neotectonics of a progressive rise of the terrain around Mt Echo, a horst block, and terrain to its south and west, and development of modern drainages, would account for the progressive unroofing of the Constable Ck granite sheet and shedding of its alluvial tin towards St Helens.

Judging by the sudden change in flow direction of Constable Ck just south of Mt Echo there has been stream capture. The original flow direction of Constable Ck was along the current Launceston Ck, and it has been captured by the present lower Constable Ck as shown on Fig 10. This would mean a change of different delivery route for alluvial tin; the older route was via Launceston Ck, delivering tin to western areas, and the younger route was and is via the modern Constable Creek, delivering tin to eastern areas. This will account for some of the complexity of alluvial tin distribution.

The known alluvial deposits worked for tin, according to different sources, are replotted on Fig 8. There are large areas of alluvium where no workings are recorded. The largest, potentially containing cassiterite derived from the Blue Tier to the north-west, is in the Pyengana area. The main historical workings have been at Thureau's Lead, the upper portions of which are in the tenement.

6.0 BASEMENT DEPOSITS

The review of known basement mineral deposits in the previous report needs revision, so all are reviewed again here.

Silver Echo aka Nephele Creek Copper Mine

In the bed of Nephele Creek an irregular mass of quartz outcrops carrying rich pockets of pyrrhotite, pyrite and some chalcopyrite and arsenopyrite. The quartz does not appear to have followed any of the local joints/ fractures, and mining has failed to follow the mineralisation any distance.

No significant exploration is reported to have been carried out. The possibility of a breccia pipe comes to mind. High copper values at surface can be expected to pass downward into high tin concentrations.

See summary review by Ruxton in Appendix A.

Echo aka Constables Ck

Tungsten and minor molybdenite occurs in quartz veins of varying thickness along joints in a granite cupola. The veins are mineralised to different degrees. Wolframite and molybdenite are the main minerals; scheelite and bismuthinite also occur, with some arsenopyrite and pyrite. The host rock is greisen altered granite and aplite.

Previous production was probably nil to negligible though a company was floated to explore the area in the 1880s.

The area was drilled by Geophoto with 5 scattered diamond holes [70-0701, 71-0818], which although intersecting greisen and other alteration, failed to intersect any significant mineralisation. It was concluded that given the current level of exposure of the cupola any sizeable previous mineralisation had been eroded away.

See also summary review by Ruxton in Appendix A.

Baden Powell

In this area within Mathinna Beds, veins of quartz carry wolframite, and in some cases also molybdenite. At the Baden Powell mine the vein quartz follows a fracture plane which strikes 30 degrees and dips 70 degrees NW. It has been mined for 150m along its length. Several small adits have been placed on parallel quartz veins but no mineralisation encountered. Waller (1901) reports about 1 tonne of wolframite was mined.

See summary review by Ruxton in Appendix A.

Carson De Beers (Price's)

Groves 1972 described this deposit as having a number of veins carrying wolframite, exposed in a number of pits, all hosted in quartzitic Mathinna Beds. Two types of veins occur, the most mineralised being poddy, up to 1m wide and 6m long. Waller (1901) reports about 1 tonne of wolframite was mined.

See summary review by Ruxton in Appendix A.

Loila Tier Tin [69-0547]

Described by Urquhart (1968) and Groves (1972). Small veins of quartz and cassiterite occur along shear planes in Mathinna beds. The presence at the western end of contact metamorphic spotting suggests that granite lies at shallow depth. The cassiterite occurs as disseminated crystalline aggregates, or encrustations in cavities in the shear zone, with a preferred quartzite host. Other excavations in the area have produced small quantities of tin ore in breccia zones. Tourmaline, arsenopyrite and galena are present.

The shear zone is 1.5km long, with vein systems up to 2m wide. Best analysis of dump material was 4% Sn.

The prospect is undrilled, which is warranted on this large system, to test its nature close to the granite contact.

See also summary review by Ruxton in Appendix A.

Wolfram Creek

In granite, close and north of the contact with of Mathinna bed metasediments, with roof pendants of metasediments. The granite is tourmaline rich, locally pegmatitic, and there are scattered quartz-greisen veins up to 0.6m wide. Shallow percussion drilling by Geophoto yielded several holes with >0.1% Sn, and soil samples in an area about 300m across yielded up to 0.14%, though the presence of cassiterite was not described and so may be fine grained. BHP soil sampling 400m further north, in granite, was also anomalous, so a large mineralised system seems to exist here in the apical part of the granite pluton.

Copper Show Creek

Workings here were rediscovered by CSR and are not in the MRT database. There is another Copper Show Ck deposit, also not in the MRT database, to the south, just outside Tin Dragon's tenement; this was discussed by Geophoto in their report 70_0690.

A shaft and trench in quartzite expose quartz veins which on analysis have up to 0.3%Sn and high Cu, Pb, Zn values.

Haley's Creek

Gossanous float samples from one side of a ridge commencing 594200E/5416000N (AGD66 Z55) trending NNW for 900m carry 0.1 to 0.3% Sn, with tungsten maximum only 40ppb, and locally up to 340ppm Bi. The linear distribution of these gossans suggests a mineralised fault zone.

Other poorly described quartz-tourmaline veins occurring within a 1.5km radius carry up to 0.3%Sn.

Ferntree Hill

Limited outcrop of mostly weathered, apparently greisenised granite was drilled by CSR. There is a distinct linear magnetic feature here.

The descriptions in CSR's report 83_1990 of surface samples and percussion chips are confusing, but rock types identified in thin section are greisen, adamellite, and one is quartzite with 10% magnetite. Their so called 'greisen like rocks' I suggest are metasomatised Mathinna beds occurring in an unmapped roof pendant. They are 30m thick and hard adamellite with greisen veins occurs below.

Tin values in drill holes in the greisen like material yielded up to 800ppm Sn, and greisen veins at surface up to 0.23% Sn.

Moonlight Marsh

Discovered by CSR, this is a 20m diameter pipe like outcrop of siliceous material with tourmalinised microgranite and quartz tourmaline veins. It carries 2% cassiterite in petrographic description but low 30ppm Sn in analysis, suggesting erratic nuggety cassiterite distribution. Coarse cassiterite occurs in some soil samples.

7.0 PREVIOUS STREAM SEDIMENT GEOCHEMISTRY

In the annual report for the previous period it was noted that MRT database contains a very mixed array of different sample types, for example panned concentrates, and various mesh sizes, collected at different parts of a stream bed at different times of the year by different companies with doubtless varying competence, and there is a mixed array of analytical techniques.

A check of the data for tin and tungsten sampling/analyses by Geophoto, CSR, BHP, and Shell was made and the various collection fractions are noted in section 3.0 of this report. Prior to the work done by Geophoto, CSR, BHP, and Shell, company stream sediment geochemical exploration was extensive but focussed on base metals and did not include Sn or W analyses.

There are substantial problems with differing mesh fractions, commonly -20 mesh, but also -40 mesh and -80 mesh were used. Both CSR and Shell conducted orientation surveys and both concluded that the -20 mesh fraction yielded best results.

The analytical techniques vary and I will not embark on a thorough review of those, but Geophoto detection limits were often around 200-300ppm rendering some of the samples geochemically useless.

Batches of CSR data are also very suspect and they themselves report a need for a lot of investigation of inconsistencies in their soil sample results. All their samples in the far south west sector of the licence (Haley's Ck area) are not anomalous in tin and tungsten, yet tin and tungsten mineralisation is known there and cassiterite/ scheelite/wolframite was noted in panned concentrates in separate surveys (see Section below). Furthermore fellow traveller elements such as As, Bi, Cu, Pb, are generally high here, see below. Poor sample collection technique could be at fault, or less likely poor quality analyses.

Tin and tungsten data was replotted removing samples which were not analysed (designated -999999 in the MRT database) and removing the Geophoto high detection limit samples, and the results, shown on Figs 11 and 12, which are substantially the same as the plots in the annual report for the previous period.

I have formed the view that the highest values for Sn and for W, as plotted here, no matter who collected them and how analyses were done, are valid anomalies, and valid as target generating tools, so at this stage no further effort to filter the data into groups of differing sample methods and differing analytical techniques is worthwhile.

Plots of other elements known to be associated with Sn and W mineralisation were done for Mo, As, Sb (very few were analysed), Bi, Cu, Pb, and Zn, as shown on Figs 12 to 19.

Arsenic was not analysed around Upper Scamander, but is anomalous north of Lutwyche and widespread anomalism exists from Cramps in a wide swathe through Flagstaff and tailing out at Echo; Bi is notably anomalous around Upper Scamander and north of Lutwyche; Cu is

notably anomalous at Haley's Ck area, Cu, Pb, Zn collectively are anomalous over wide areas of Mathinna beds, and Mo has a few scattered anomalies, one curious cluster being north of Launceston Ck in granite. Some of the patchy high values for Mo seem to be batch related.

More discussion on element anomalism is available elsewhere in this report, in parts covering deposits, prospects and target areas.

8.0 PREVIOUS STREAM SEDIMENT PAN CONCENTRATE SAMPLING

CSR made a careful study of the mineralogy of pan concentrates of (apparently) carefully collected trap site stream sediment samples, from several places especially the Haley's Ck area.

Cassiterite was reported in a number of places, in abundance in some granitic areas suggesting a close source.

Of great importance was the detection of soft wolframite and scheelite in the Haley's Ck area; because these are soft minerals they must be close to source and so are good targeting indicators. I have plotted these locations from the CSR reports in mapinfo; locations are shown on Fig 20.

9.0 PREVIOUS COMPANY GRIDS, SOIL SAMPLING AND DRILLING

Several campaigns of gridding and soil sampling have been conducted by Geophoto, CSR, BHP and Shell. The digitised location of these grids is shown on Fig 21.

The location anomalous soil samples exceeding 50ppm for Sn and for W, are plotted with a TMI underlay on Figs 23 and 24.

The distribution of drill holes by all companies is plotted on Fig 22. Many are not present in the MRT database or are wrongly located in the MRT database.

10.0 FIELD VISIT

10.1 TRAVERSE

A vehicular traverse was made from the Loila Tier to Launceston Creek.

Progressing from the high country of the Tier occupied by Mathinna Beds to the granite terrain I was struck by the geomorphological differences.

Generally the granite areas are highly weathered, with large parts having no outcrop and much alluvial cover. This is an older land surface, probably with older drainages, and perhaps is Eocene in age. The Mathinna beds on the Tier occupy a much newer land surface which is being actively cut by relatively modern streams.

The Tier is surely a horst and an examination of DEM imagery shows that the eastern faulted edge close to the coast is well defined and the interior parts seem to be bound by complex faults. The Mt Echo horst is a subset within the Loila horst.

The implications of this for mineral exploration, apart from making access in the upthrown rugged areas more difficult, is that it confirms that the weathering history and alluvial history are complex, and simplistic approaches to alluvial deposit exploration should not be adopted. Also past geochemical exploration results for tin and tungsten in granite terrains need to be evaluated with care because some apparently barren areas may in fact be mineralised and concealed by modern alluvium.

10.2 RECONNAISSANCE VISIT TO MINED ALLUVIAL AREAS

See Section 5.0 ALLUVIAL DEPOSITS

10.3 SAMPLING

See Section 11.0 SAMPLING below

11.0 SAMPLING

An area on the west side of Skyline Tier where several tungsten anomalies were generated in Shell sampling of stream sediments was visited and samples taken. The anomalies were suspicious and so this sampling was designed as a check of the previous work. Two stream sediment samples and four rock samples were collected. Preparation/grind for analysis was carefully done without using tungsten carbide/ tungsten steel.

No samples contain any elevated values for a suite of elements including Sn and W.

Previous W anomalies were of the order of 25-60 ppm, yet this sampling returned less than 0.1 ppm, so the conclusion is that the previous analyses in this area were faulty, possibly because of the use of tungsten carbide in the grind process.

The area visited has Mathinna bed metasediments which are commonly invaded by quartz sheeted veinlets and in places are ferruginous/gossany, thus looking promising as a source of W or Sn; however no mineralisation was detected by analysis.

All samples were checked for scheelite with short wave ultraviolet light, but no scheelite was observed.

Samples analyses and descriptions are in the attached file

"EL40-2011_drainage_rock_analyses_2014_WASG3.txt"

12.0 ASSESSMENT OF PROSPECTIVITY AND MINERALISATION STYLES

In the 2013 Annual Report various datasets were evaluated, including gravity, magnetics, Landsat and Google imagery, DEM imagery, radiometrics, and Aster, and this appraisal is not repeated here.

A major revision however is the recognition that the most significant type of mineralisation in the district, namely Great Pyramid style and also the mineralisation drilled by BHP at North Scamander, is accompanied by magnetite and pyrrhotite. Thus all magnetic high features except those obviously due to granodiorite, or to dolerite dykes and to basalt in Thureau's deep lead, must be viewed as altered potentially mineralised Mathinna beds.

Interpreted faults and fractures were plotted as in Fig 9, based on linears and discontinuities seen on magnetic imagery and on DEM imagery and topographic maps. There are some prominent directions which may control mineralisation: NW, common in Mathinna beds; NE common in granite, and sub parallel to the Orieco Fault, and partly control the Mt Echo horst, and is the direction of the fault hosting the Loila Tier deposit; and NS controlling the east edge of the Liola Tier and on the west of the Tier controlling the contact of Mathinna beds and granite.

The known basement deposits are small and production from them is probable negligible, yet exploration of them to date is very restricted, and the potential for large deposits of various styles is rated high.

The main styles of basement tin and tungsten mineralisation appropriate for the area and which could be commercially significant are;

- Great Pyramid style sheeted micro-vein system hosted in brittle quartzites or metasiltstones
- Large veins of Aberfoyle-Storey's Creek type hosted in brittle quartzites or metasiltstones
- Shear-fault zones, containing variable quartz veins as at Loila Tier.
- Greisenised granite sheets of Anchor type
- Altered metasomatised Mathinna beds at granite contacts.
- Breccia pipes

Alluvial tin deposit styles which are appropriate for the area will be away from environmentally sensitive current drainages and so are restricted to alluvial terraces, or paleochannels.

13.0 ALLUVIAL TARGETS

Thureau's Lead was the largest past producer but based on a literature review seems to offer little remaining potential

It is assumed that most mined areas offer little remaining potential.

Elsewhere in the licence there are large alluvial areas where there are no records of any subsurface testing.

Targets, as plotted on Fig 29, are in areas where no previous exploration is recorded and where little if any past mining has taken place. Possibly the best target is the Pyengana area, where cassiterite could have accumulated in paleodrainages sourced in the heavily mineralised Blue Tier to the north-west.

The merits of each target are listed below.

Target 1- Pyengana area.

- Downstream from the known main primary tin bearing areas of the Blue Tier
- Sn anomalies in stream sediment.
- No recorded previous exploration.

Target 2 Groom River area.

- Apparently previous workings but apparently not extensive.
- Source areas upslope to north have Sn anomalies in stream sediment
- Granite area to north was mapped as hydrothermally altered and greisenised by McLennan and Williams, 1982, (post the mapping by Groves in GSB55), so could be a good Sn source.

Target 3 Moonlight Marsh

- Swamp areas avoided by previous miners because of clay handling difficulties
- Difficult to bore so unexplored
- Known tin mineralisation reported by CSR at Coplestone Hill

Target 4 Steeles Marsh- Carters Marsh

- Abundant coarse cassiterite in CSR pan samples at lower end of Carters, suggesting nearby source
- Sn stream sediment anomalies

Target 5 Upper Argonaut

- Abundant coarse cassiterite in CSR pan samples
- Known workings to north, perhaps this area not yet worked.

14.0 BASEMENT TARGETS

The Targets generated in this study are as yet unranked. The merits of each are listed below:

Target A

- Magnetic high in mapped granite terrain so may actually be a roof pendant of Mathinna beds similar to that at Ferntree Hill
- Abundant cassiterite in CSR pan concentrate sampling.
- Generally poorly sampled to date

Target B

- Mo stream sediment anomaly cluster in granite
- Abundant cassiterite in CSR pan concentrate sampling downstream
- One Sn stream sediment anomaly

Target C- Ferntree Hill North

- Magnetic high in mapped granite terrain interpreted to be a roof pendant of altered Mathinna beds.
- Known greisen mineralisation in the limited areas tested by CSR
- One line of gridding intersects the feature; has soils exceeding 50ppm Sn

Target D- Ferntree Hill South

- Magnetic feature absent but greisen in granite roof zone likely to exist.
- Abundant cassiterite in CSR pan concentrate sampling

Target E- Launceston Ck

- Granite terrain but could be greisen sheets, or vein swarms unexposed
- Large anomalous Sn and W stream sediment cluster

Target F- BHP Grid GT4-GT9

- Granite terrain, but apparently little or no outcrop, so could be greisen sheets, or vein swarms unexposed
- Anomalous soils

Target G- Silver Echo

- Possible breccia pipe at old mine.
- Magnetic (airborne) Mathinna beds, so a target for mineralisation closer to the granite contact at depth.

Target H- Haley's Ck to Carson De Beers

- Gossany rocks over a strike length of 900m in apparent fault zone with up to 0.3% Sn in surface sampling
- Other mineralised gossany rocks with up to 0.3% Sn
- Known mineralisation at Baden Powell, Carson De Beers, Copper Show Creek

- Apparent set of NW trending fractures controlling mineralisation and perhaps themselves mineralised
- Cassiterite in CSR pan concentrate sampling
- Wolframite and scheelite in CSR pan concentrate sampling indicates nearby undiscovered sources
- Cu, Bi, (Mo), (Pb) anomalies in stream sediments
- Many folded magnetic Mathinna beds, so many targets for mineralisation closer to the granite contact at depth.

Target I- Wolfram Ck

- At granite cupola, with Mathinna bed roof pendants
- 300m radius area with drilled rock commonly up to 0.15% Sn
- Anomalous soils sampling by Geophoto and by BHP.
- Potential for large low grade open pittable system

Target J- High Tier

- Large area with anomalous W and/or Sn in stream sediments
- Along the Mathinna bed-granite contact which may be faulted and mineralised
- Extensive untested magnetic Mathinna beds

Target K- Cramps Road

- The highest tenor magnetic Mathinna beds
- Cu anomalies in stream sediments.
- No previous exploration

Target L- Loila Tier

- Known mineralisation in fault zone with strike exceeding 1.5km
- Up to 4% Sn
- Not drilled

Target M- Moonlight Marsh

- 20m wide tourmaline rich breccia pipe in granite
- 2% Sn in petrological description
- Coarse cassiterite in soils.
- Unmapped, ill defined.
- Undrilled.

13.0 GENERAL CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE WORK

A review of previous work and various datasets has been used to determine the prospectivity of the area for alluvial tin deposits and for basement tin and tungsten deposits.

The area is assessed to be highly prospective for several styles of mineralisation, and a number of target areas are generated.

Recommended future work includes:

Targets generated here should be ranked after field visits to each.

For selected alluvial targets an initial auger sampling program to assess depth, extent and grade of alluvium.

For selected basement targets:

- Geological mapping and rock chip sampling
- Gridding and soil sampling
- Ground or helicopter detailed magnetics to guide drill targets
- Trial gravity survey to assess value in locating mineralised granite cupolas
- Drilling

14.0 EXPENDITURE

Expenditures have been reported via MRT Quarterly Returns.

15.0 REFERENCES

[A full reference list has not been attempted. Below are some key references used].

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APPENDIX A

Deposit Reviews by Ruxton for Shell

From Open File report 84_2218

ECHO PROSPECT

25/10/83

1) General Description WO₃, Moa) Style of Mineralization

Quartz veins with siliceous and muscovite greisenized granite margins. Veins contain Wolframite and molybdenite. Mineralization occurs in granite immediately beneath the granite/sediment contact.

b) Host Rocks

Medium grained biotite granite - minor porphyritic and fine grained variants close to the granite/Mathinna sediment contact. Granite outcrops in a window within the Mathinna Beds. Granite here forms a local structural high on the granite surface - a ridge structure which trends N-S (NNE to SSW).

c) Geography/Location

Located on Constables Creek 6km SW of St. Helens. Granite well exposed in Constables Creek and N-S tributary on the South side of creek.

Access is by Medeas Cove Road from St. Helens and bush track which runs along the Constables Creek river course about 1-2km.

Tracks bulldozed by Geophoto - now inaccessible mostly - washed away in places and overgrown.

d) Old Workings

Quartz veins at Echo North trenched and pitted - on vein traceable for approximately 160m, E-W - trench 5m deep, 2m wide. Workings here 100m long, 50m wide.

South Echo minor pits on lodes.

Five diamond drillholes drilled by Geophoto 1974, 2 on North Echo, 3 on South Echo. One costean on Western side of North Echo.

Recce soil sample lines by BHP - inconclusive.

Geophoto radiometric airbourne anomaly.

2) Host RocksGranite Hosted

Dominant granite-type grey/white medium grained equigranular granite - leucorotoc.

White feldspars (pinkish on south side of the granite window). Milky

well cleared, perthitic and enclose books of biotite - crystals subhedral 1cm across.

Quartz clear, fractured generally anhedral - size variable upto 8mm across.

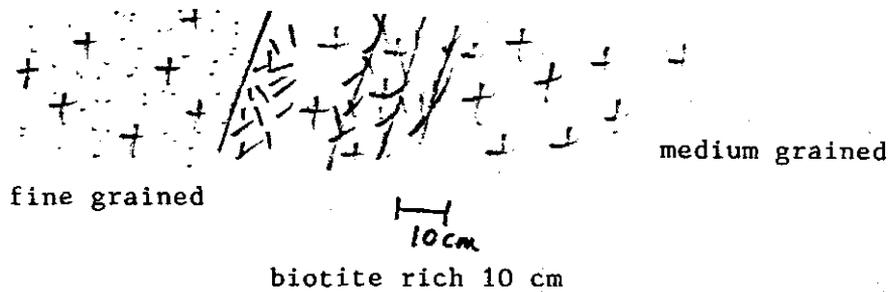
7-8% mafics all biotite.

Minor alteration of feldspars to greenish/yellow clay minerals.

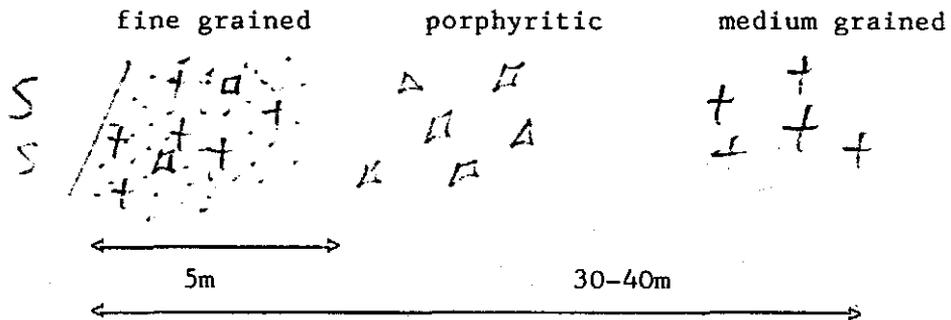
No tourmaline or muscovite!!

Towards the margins of the granite get porphyritic variant. Phenocrysts of quartz and feldspar upto 1cm across - groundmass fine grained biotite granite.

Very close to contact with sediments fine grained granite variant seen. Generally quartz/feldspar few mafics - some areas contain phenocrysts of biotite. Sharp contact zone between fine grained granite and medium grained equigranular granite (in S tributary of Constables Creek contact between fine grained granite and medium grained granite very sharp and biotite rich).



Sequence of medium grained to porphyritic to fine grained granite observed in S. tributary of Constables Creek within 50m of sediment contact.



Granite well jointed with dominant directions NE trending (dipping steeply NW) and WNW trending (dipping steeply NE). See stereonet attached. (Minor NW trending joints).

Greisenized granite lodes and associated quartz (plus minor tourmaline) veining trends NW and WNW (NOT associated with the NE direction).

Groves (1972) reports joints in granite and sediments coated with euhedral crystals of cassiterite (not observed by the author).

Mathinna Beds

Mathinna sediments surrounding the granite are hornfelsed. Recrystallized - very hard and may contain large "leopard-lite" spots. Spotting not always present in contact sediments.

Original lithologies siltstones and shales - bedding fairly common striking NW and dipping to the SW. Joints similar orientation to those in the underlying granite (see stereonet).

Granite/sediment contact - locally steeply dipping. S tributary of Constables Creek contact trends 137° 86° SW dip. On the Western arm of Constables Creek contact between 50° to 60° dip.

Axis of the granite ridge inferred to be NNE to SSW since:

- 1) Granite window elongate NNE - SSW.
- 2) Greisenization is common in the apical zones of granite cupolas - sparse elsewhere - at Echo the trend is NNE - SSW from North to South prospects.
- 3) Granite exposed in the western arm of Constables Creek shows little variation towards the sediment contact. Varies from medium grained to fine/medium grained granite.

3) MineralizationGross Setting/Dimensions

Two dominant zones of Mineralization.

North Echo - WNW trending greisen lodes - zone of about 160m to 200m long and 50m wide close to the top of the granite. Individual lodes traceable for 160m upto 8m deep (Groves 1972) with widths upto 2m across.

Wolframite and molybdenite distribution is very patchy. Mineralization occurs in quartz veins which are bounded by siliceous and muscovite granitic lode margins.

South Echo - Series of shallow pits - pretty spaced out, largest pit about 15 to 20m long and 1 to 1.5m across. Dominantly wolframite - very patchy. Mineralization in central quartz veins flanked by muscovite granite lode margins - siliceous lodes not common here.

Lode veins consisting of muscovite (some siliceous alteration) and central quartz veins upto 30cm across (some upto 1m across - rare) occur in the granite window. Generally thin and not mineralized away from the granite contact. All lode veins trend NW or WNW.

Veins/lodes thin rapidly with depth below the granite contact. 50m below contact veins very confined - no depth potential.

Greisenized fluids pooled/ponded at the granite sediment contact.

Mineralogy

Muscovite Lode - Quartz/muscovite greisen - may contain biotite in places - muscovite replaces feldspar (and biotite) - quartz is primary.

Siliceous Lode - Dominantly quartz - primary crystalline quartz plus a siliceous matrix of granular quartz - minor muscovite. Grades into the muscovite lode.

Central Quartz Vein - Dominantly vein quartz with minor muscovite. Contains bladed wolframite and molybdenite.

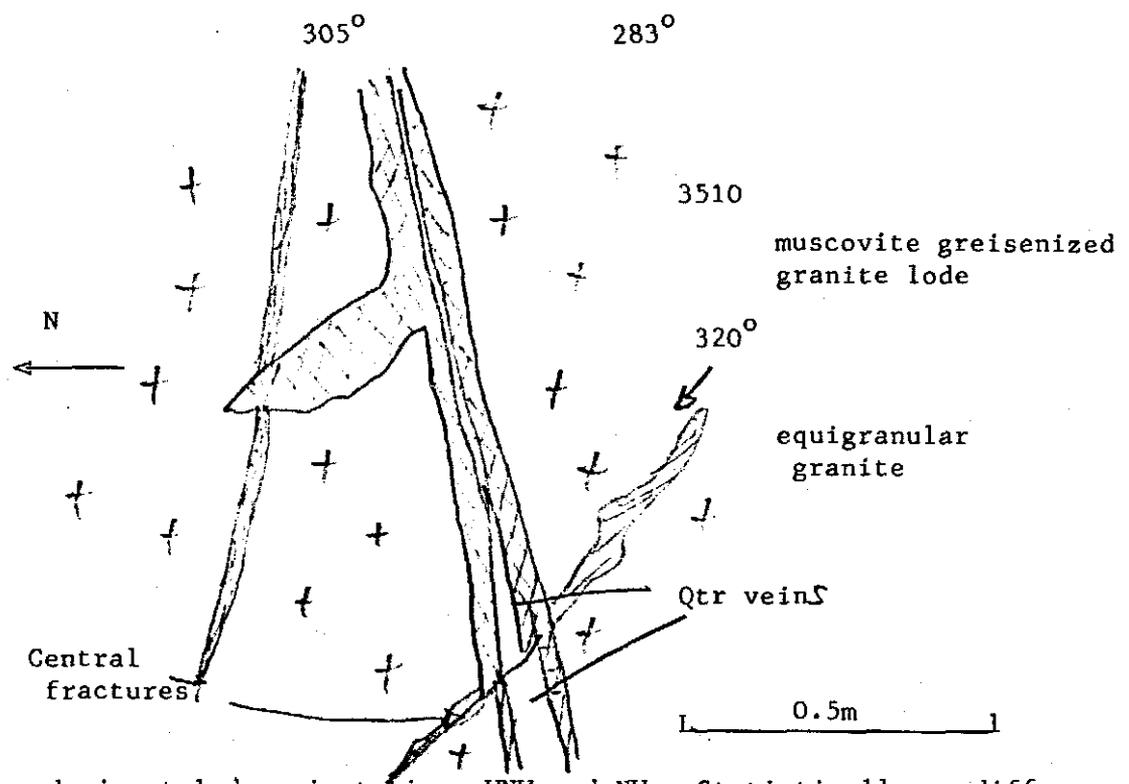
Occasionally a central tourmaline fill is present generally <2cms across.

Some lode veins may contain marginal shearing of the host granite (rare).

Quartz centre and sheared margin.

Horizontal/gently dipping stickensides on quartz veins also.

Distribution of lode very irregular - always related to fractures or joints. ⊕ Lode veins therefore altered joint surface! ⊕



Two dominant lode orientations WNW and NW. Statistically no difference (see stereonet).

Drilling Results

North Echo - DDH1 - 138m depth assays low - rockchips from dump upto 15.1% WO_3 , 0.1% Mo and 0.58% Bi.

DDH2 - 65m depth maximum values of 0.1% WO_3 , Sn maximum 0.1%, Mo 750ppm.

Narrow vein in DDH1 0.7m at 0.29% Sn depth of 130m - only intersection

South Echo - DDH3 - (-45° to 041°) 90m. Vein of 0.2% WO_3 , 0.18% Bi - assay values generally low. Obtained WO_3 values from the greisenized granite.

DDH4 - (-45° to 185°) 130m depth, drilled to test soil anomaly Mo upto 90ppm. Granite kaol mize, Fe rich near surface. Minor Py, chalcopryrite on joints. Maximum values Mo 40ppm, 0.08% Sn, 20ppm Bi.

DDH5 - (-45° to 007°) 135m depth. Drilled from Mathinna Beds. (Previous Cobra Rock drilling gave results of 0.65% WO_3 , 0.18% Bi).

5m of fg granite - siliceous too passes into biotite granite secondary chloritic alteration of biotite.

Peak rock assays 0.08% Sn, 70ppm Mo. Very patchy.

137

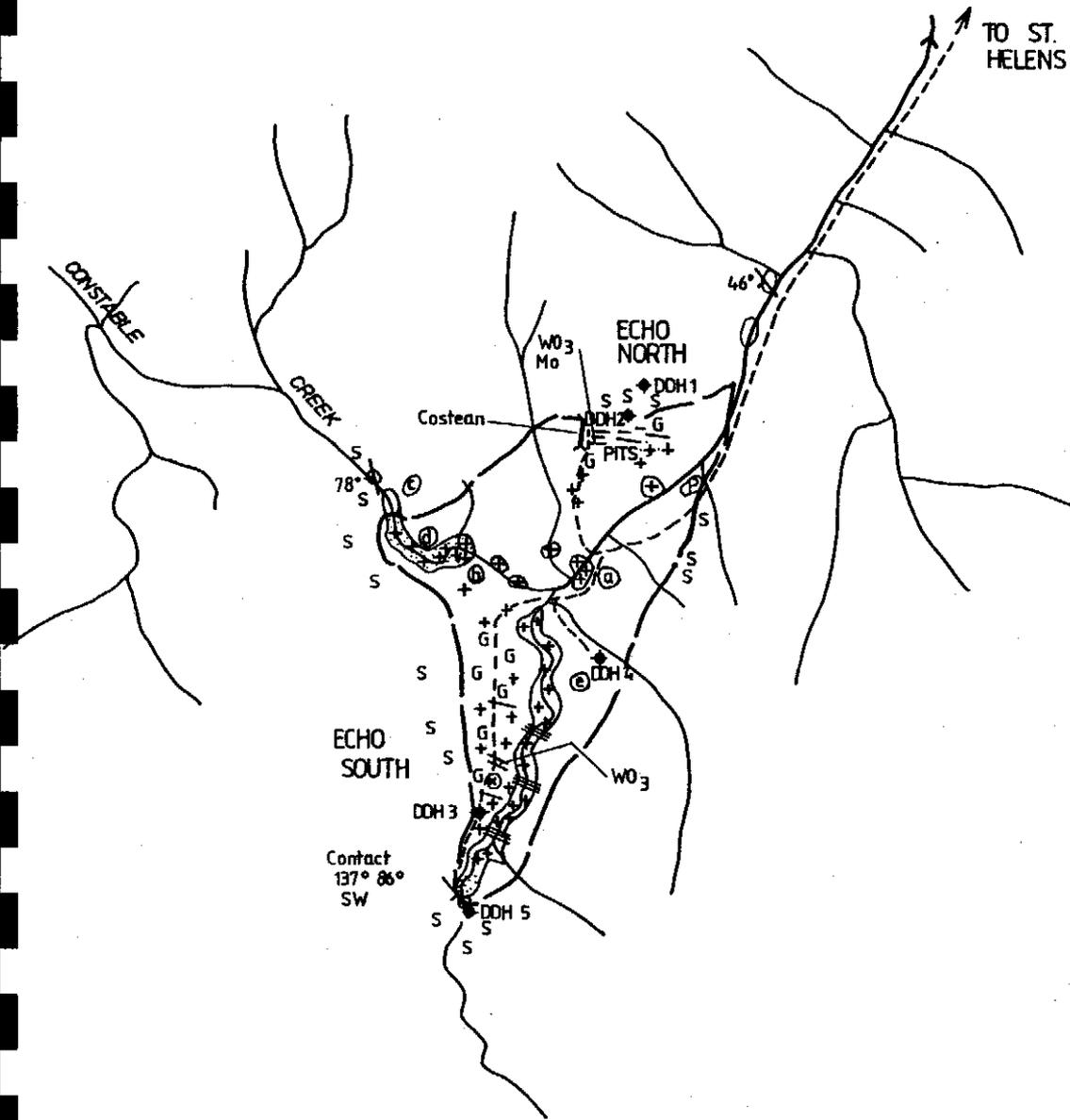
342138

ECHO PROSPECT

ROCK CHIP

ROCK NO./LOCATION TYPE	Au	Sn	WO ₃	Mo	As	Cu	Pb	Zn	Bi	Ag
6818 East side of granite window Greisenized granite	< 0.05	55	25	14	410	46	20	12	160	<1
6817 E. side of granite window Fresh granite, Equig. Bi	< 0.05	8	<10	16	24	8	<4	6	6	<1
6818 E. side of granite window. Greisen vein & Qtr vein, cass?	< 0.05	1.41%	35	16	140	12	12	6	6	<1
6819 E. side of granite window. Greisen & Qtz vein	< 0.05	38	30	210	28	10	<4	32	170	<1
6820 E. side of granite window. Greisen vein.	< 0.05	22	1550	40	< 2	6	4	10	480	<1
6821 South Echo. Chl/Im rock - greisenized.	< 0.05	340	25	< 4	44	10	8	250	26	<1
6853 South Echo. Qtz/fg tourm vein & Greisen.	< 0.05	950	40	< 4	70	48	8	38	10	<1
6854 South Echo. Greisen & Qtz vein siliceous.	< 0.05	24	910	4	5	8	8	16	120	<1
6855 North Echo Pits. Greisen and Qtz veins siliceous.	< 0.05	26	180	125	90	20	10	22	360	2
6856 North Echo Pits. Qtz vein & Mo.	< 0.05	< 4	2650	1.06%	2050	14	700	4	1400	173
12451 Western Creek. Qtz vein & greisen minor Fe.	< 0.05	580	30	4	230	36	20	70	12	2

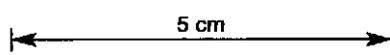
South Echo	Sn	WO ₃	Mo	Bi	Ag
North Echo	1.41%	1550 ³	210	480	
		2650	1.06%	1400	173



LEGEND

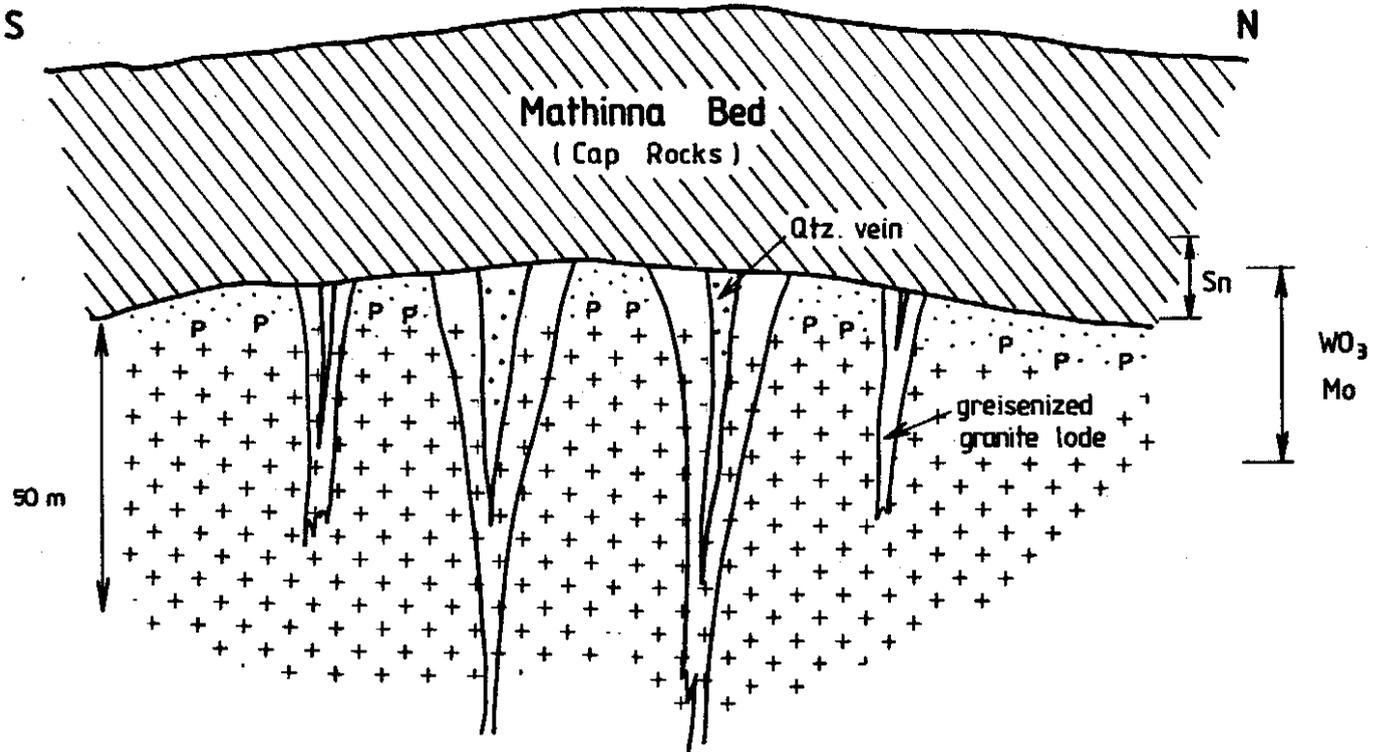
- S S MATHINNA BEDS
- + + MEDIUM GRAINED GRANITE
- P PORPHYRITIC GRANITE
- ⊕ FINE GRAINED GRANITE
- ≡ MINERALIZED LOAVES

- G GREISENZATION
- DOH 1 DRILL HOLES
- ⊙ FIELD NUMBER



The Shell Company of Australia Limited METALS DIVISION	
E.L. 12/78 SCAMANDER	
ECHO PROSPECT	
(RUN 7 No 146)	
SCALE 1:15000	DATE 24-10-83
AUTHOR P.A.R.	DRAWN J.L.L.
OFFICE D'PORT	REP.No.
DRG No. 21/10/83	FIG No.

ECHO PROSPECT



LEGEND

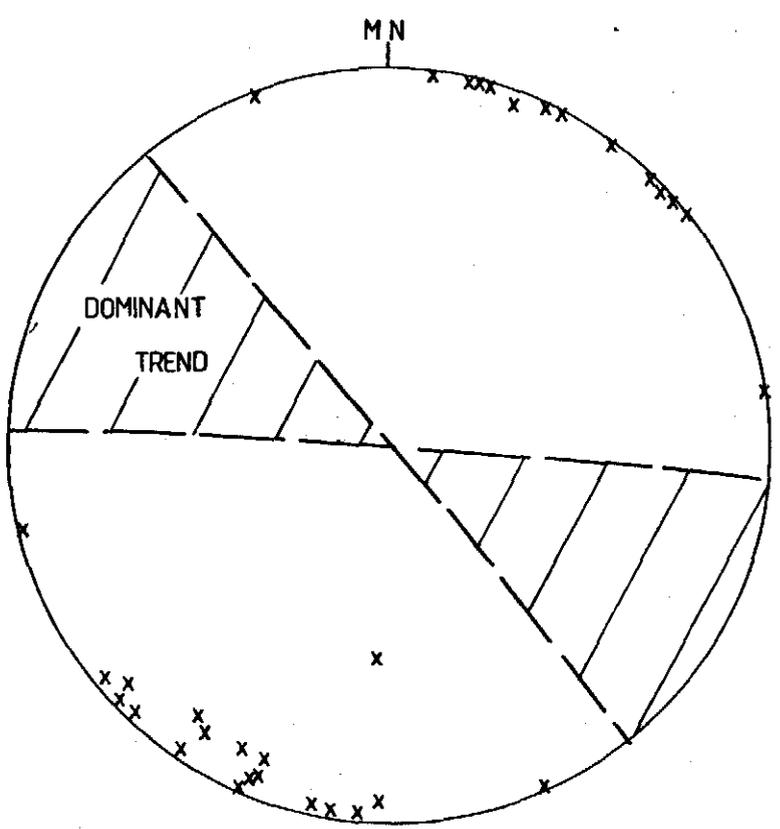
- FINE GRAINED GRANITE
 - PORPHYRITIC GRANITE
 - MEDIUM GRAINED EQUIGRANULAR BIOTITE (MINOR MUSCOVITE) GRANITE
- } CHILL PHASES

5 cm

The Shell Company of Australia Limited METALS DIVISION	
E.L. 12/78 SCAMANDER ECHO PROSPECT DIAGRAMMATIC SECTION	
SCALE	DATE 24-11-83
AUTHOR P.A.R.	DRAWN J.L.L.
OFFICE D'PORT	REP.No.
DRG.No. D/LH02/S15	FIG.No. 2

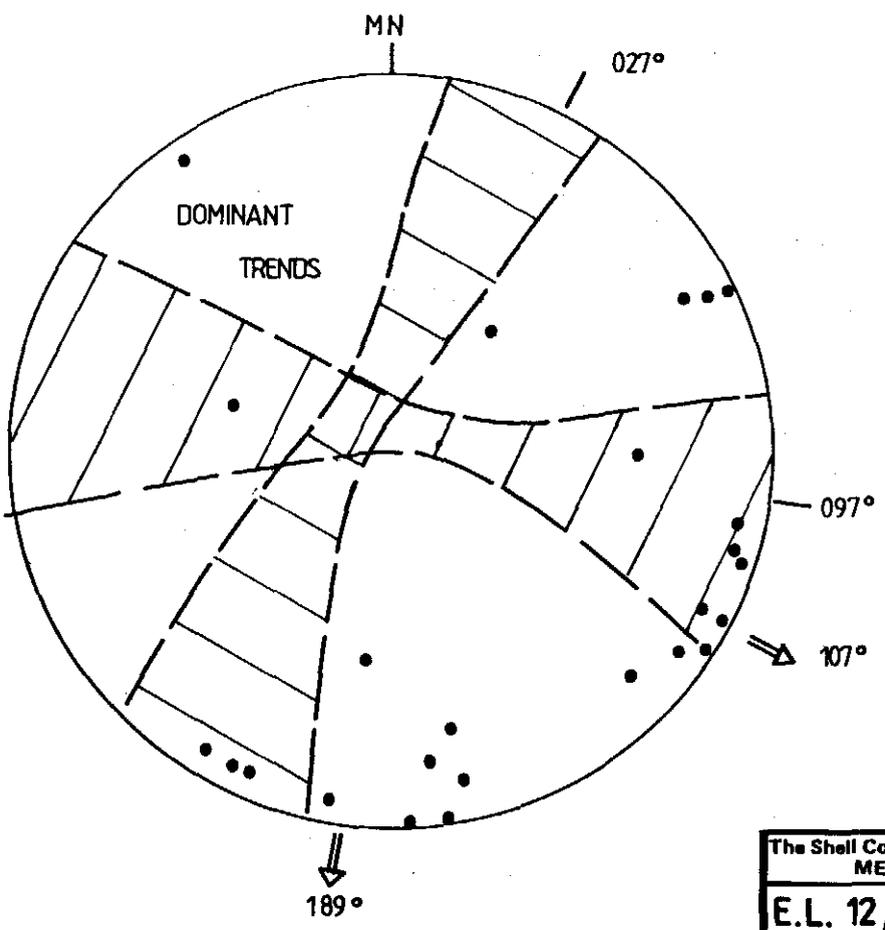
LODE VEINS IN GRANITE

x n = 17



JOINTS IN GRANITE

• n = 24



5 cm

LAMBERT EQUAL AREA NET

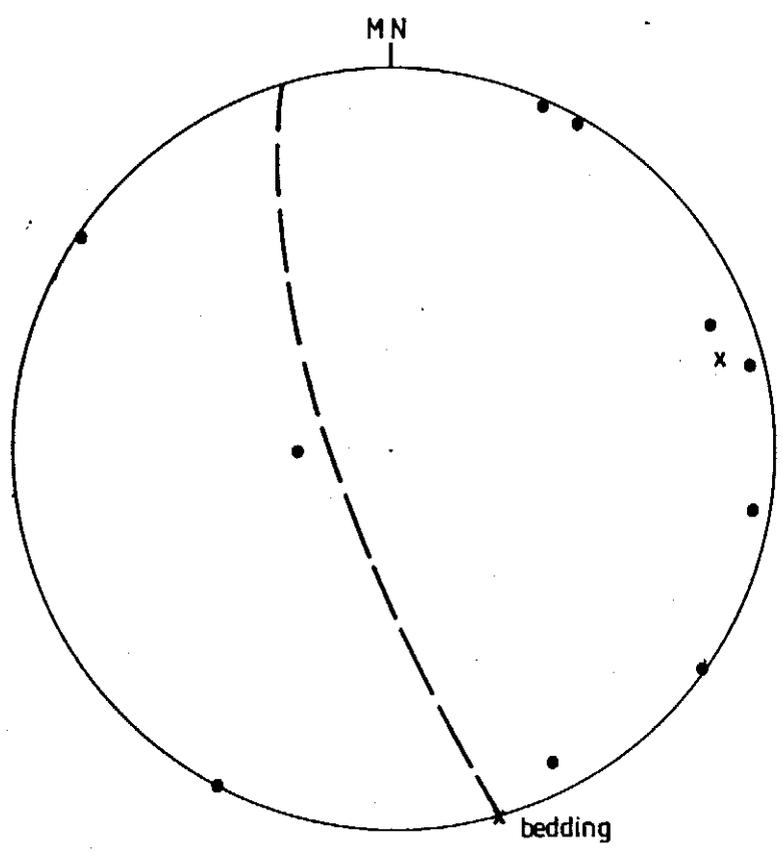
The Shell Company of Australia Limited METALS DIVISION	
E.L. 12/78 SCAMANDER	
ÉCHO PROSPECT	
STEREO NETS.	
SCALE	DATE 25-7-84
AUTHOR P.A.R.	DRAWN J.L.L.
OFFICE D'PORT	REP.No.
DRG No. DA 1402/540	FIG No.

141

342142
24/10/83

JOINTS IN
MATHINNA BEDS

• n = 7



5 cm

LAMBERT EQUAL AREA NET

The Shell Company of Australia Limited METALS DIVISION	
E.L. 12/78 SCAMANDER	
ECHO PROSPECT	
STERO NET	
SCALE	DATE 25-7-84
AUTHOR P.A.R.	DRAWN ILL.
OFFICE D'PORT	REP.No.
ORG No D/LH02/567	FIG No

142

SILVER ECHO PROSPECT

28/10/83

1) General Description

a) Style of Mineralization

Sulphides (dominantly pyrrhotite) related to a NNW trending quartz vein blow with associated marginal greisenized granite. Host rocks silicified/recrystallized Mathinna sediments.

b) Host Rocks

Mathinna Bed sediments - dominantly sandstones - recrystallized and silicified. Very hard. Bedding generally strikes NW dipping SW.

c) Geography/Location

Located 5km SW of St. Helens on the edge of a small mineral lease for building stone. Prospect occurs in the stream bed of the Eastern Tributary of Nephele Creek.

d) Old Workings

Adit 44m long driven to test extensions of the quartz blow. Small shaft in the creek bed sunk on south (sulphide rich end) of quartz blow.

2) Host Rocks

Mathinna Beds

Lithology Mixture of sandstones and shales although sandstones dominate. Rocks recrystallized and silicified.

Bedding Beds strike NW and dip gently to the SW. No cleavage in shales. Minor bedding visible only.

Fractures/veins/faults Sandstones highly fractured. Fracture sets trend: 1) WNW - ESE, 2) WSW - ENE, 3) NW (to WNW) -SE.

In adit fractures trending WNW - ESE contain pyrite and quartz. Upto 30 to 40 fractures per metre - some fractures upto 1cm wide with euhedral quartz fills. WNW trend SSW dip-steep.

Two sets of quartz veins recognized 5m S of prospect further up Nephele Creek trending: a) NNW (to N-S) and dipping east, b) WNW dipping SW. Main quartz blow/lode trends NNW.

Metamorphism/alteration Sandstones/shales extremely silicified. In some areas silicification clearly related to fractures but then generally pervades the whole rock.

Spotted shales seen in float close to the prospect in addition to quartz and quartz/tourmaline veining.

Greisenized Granite

Possibly a granite dyke? - granite forms a margin to the NNW trending quartz lode/blow.

Bluish/grey rock - white milky feldspars - rounded quartz phenocrysts (4mm maximum diameter). Biotite mica 3-3.5mm maximum diameter (generally less). Quartz bluish, minor day mineral alteration of feldspars. Disseminated pyrite.

Other samples quartz - sericite greisen with a faint relic granite texture - vugs - feldspar absent in this specimen - sulphides.

Conclusion greisenized porphyritic biotite granite - may be totally replaced by massive sulphide.

4) MineralizationGross Setting/Dimensions

Pod-like quartz vein which trends NNW. Greisenized granite and quartz vein material 25m long and 8m wide - quartz vein itself is 14m long and 6m wide. The NNW direction is parallel to a regional fracture/quartz vein direction suggesting the mineralized lode is a tension gash feature.

Sulphide-rich portion 2m by 2m or less.

Origin - 1) could be a dyke or pipe of granite and associated quartz vein or
2) a tension gash feature.

Mineralogy

Sulphide-rich lode occurs at the margin of the quartz blow and greisenized granite. Massive sulphide samples with quartz eyes indicating a relic granite texture. Massive sulphide samples suggest coincident formation with the quartz blow.

Disseminated sulphides in the greisenized granite dominantly pyrite.

Away from sulphide-rich area quartz blow generally barren of sulphide.

Dominant sulphide in lode is pyrrhotite - unusual - associated chalcopyrite/pyrite plus marcasite.

Anastomosing veins of pyrite/pyrrhotite.

Groves (1972) recognized intergrown muscovite and tourmaline in lode material.

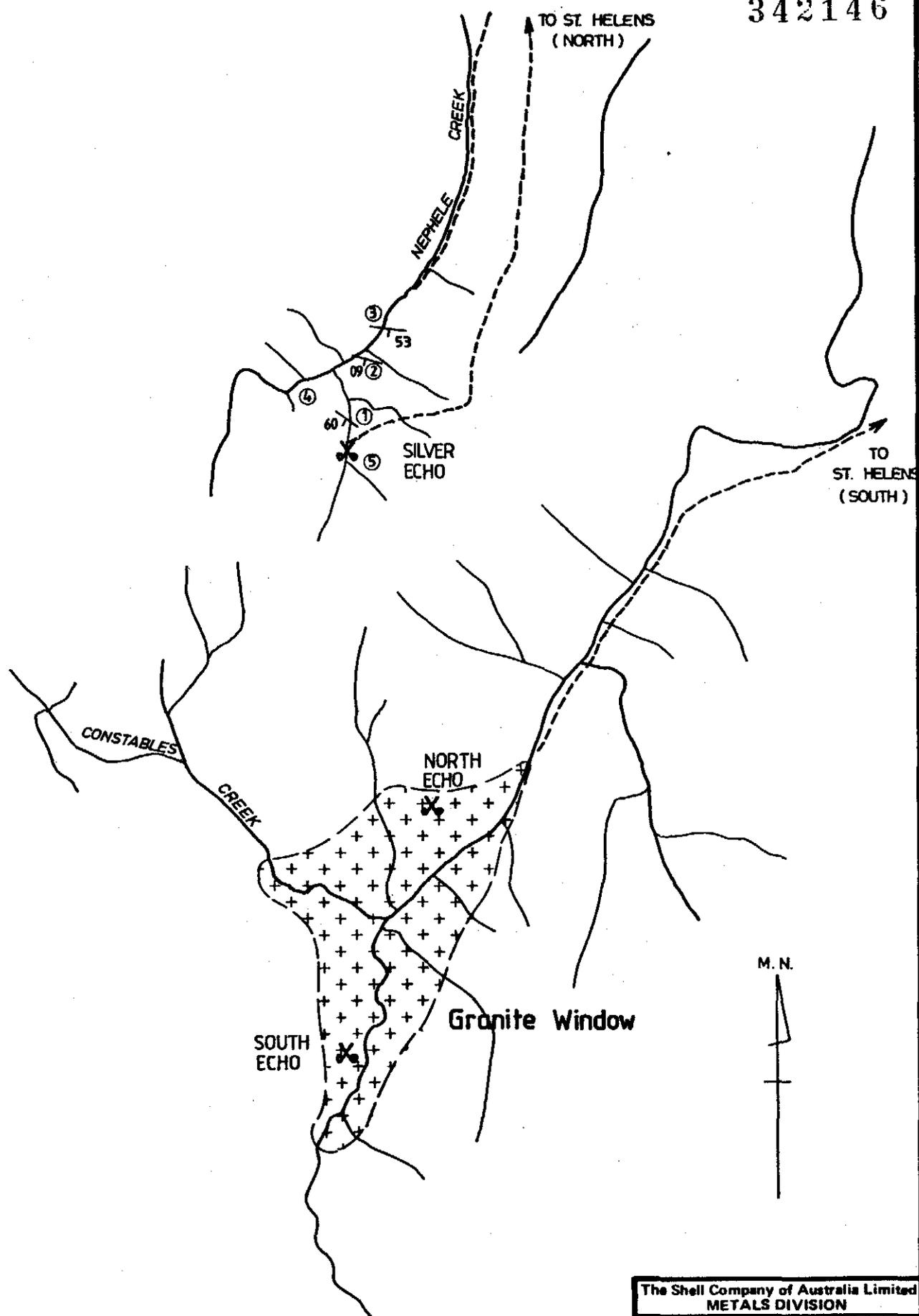
Note Ferricrete formed downstream of the prospect - of irregular thickness and occurs beneath alluvial/colluvial concentration ie. may be Tertiary Blocks of lode material and Mathinna Beds enclosed.

SILVER ECHO PROSPECT

ROCK CHIPS

ROCK NO./LOCATION TYPE	Au	Sn	WO ₃	Mo	As	Cu	Pb	Zn	Bi	Ag
<u>12456</u> Prospect Greisenized granite	<0.05	8	10	<4	75	90	22	16	8	<1
<u>12457</u> Prospect Greisenized granite	<0.05	65	45	4	55	135	26	10	4	1
<u>12458</u> Prospect Qtz/sercite Minor Fe	<0.05	6	10	<4	60	34	24	34	8	<1
<u>12459</u> Adit entrance Massive Po/Py	<0.05	<4	30	60	90	5700	30	24	<4	5
<u>12460</u> Adit entrance Py veins in granite	<0.05	<4	<10	8	36	2500	24	12	10	4
<u>12461</u> Adit entrance Massive Po/Py & chip	<0.05	<4	15	120	85	5700	28	46	8	4
<u>12462</u> Adit Sil.mg.sst, Py fract.	<0.05	6	55	<4	20	120	24	24	12	<1
<u>12463</u> Adit Sil.mg.sst. Qtz/Py veins	<0.05	<4	60	6	44	130	12	16	<4	1
<u>12464</u> Float in Creek Massive Po & chp minor	<0.05	<4	<10	16	46	1300	32	10	32	4

<u>Sn</u>	<u>WO₃</u>	<u>Mo</u>	<u>Cu</u>	<u>Bi</u>	<u>Ag</u>
65	60	120	5700	32	5

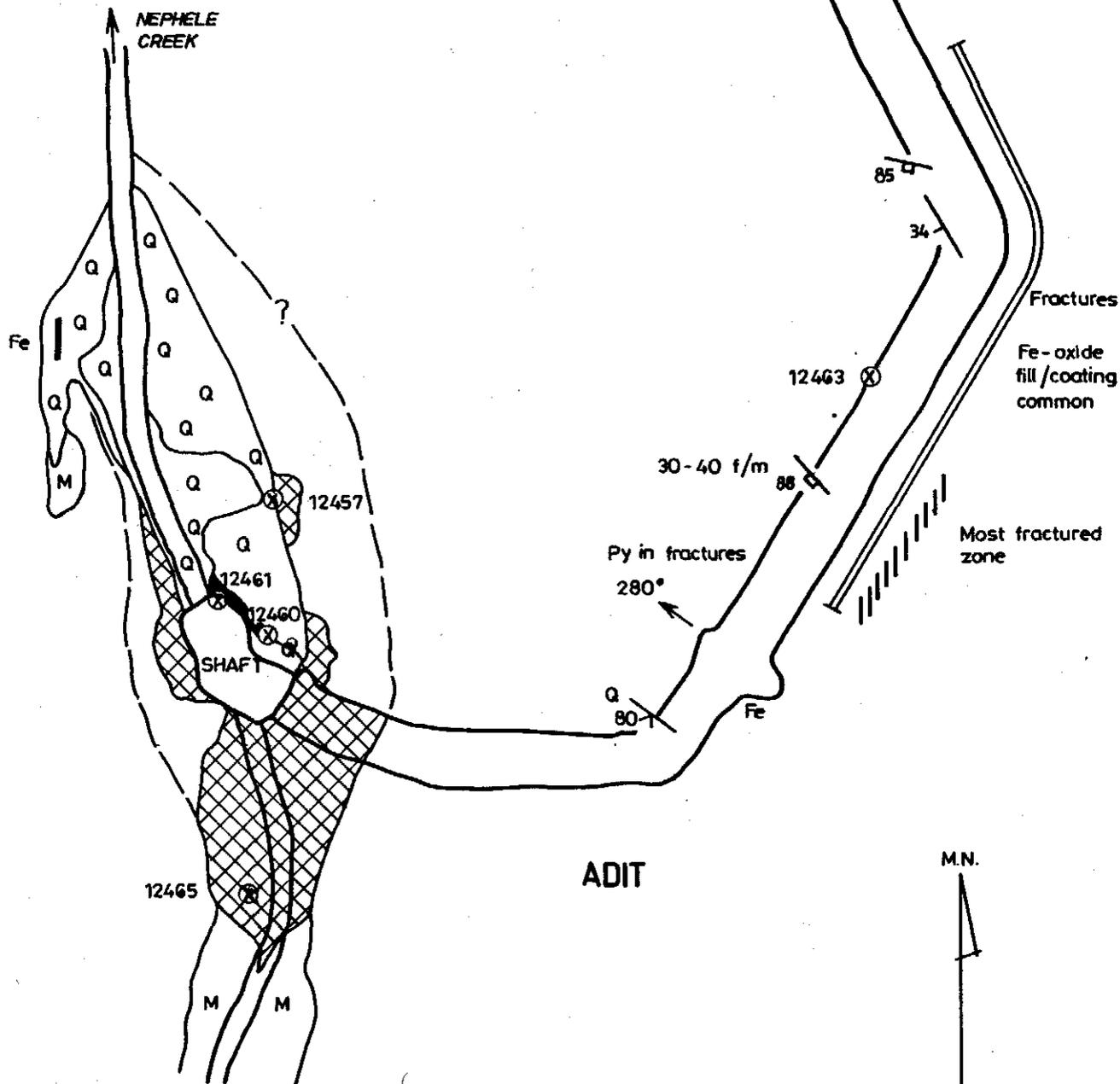


The Shell Company of Australia Limited METALS DIVISION	
E.L. 12/78 SCAMANDER	
SILVER ECHO PROSPECT	
SCALE 1:15000	DATE 28-10-83
AUTHOR P.A.R.	DRAWN J.L.L.
OFFICE SCAMANDER	REP.No.
ORG.No. D/LH02/521	FIG.No.

5 cm

342147

ADIT 44 m LONG



LEGEND

- Q QUARTZ VEINS
- SULPHIDE ZONE
-  GREISENIZED GRANITE
- SANDSTONE SHALE
- SANDSTONE
-  BEDDING
-  FRACTURE
-  VEIN
- 12640 ROCK CHIP SAMPLE

The Shell Company of Australia Limited METALS DIVISION	
E.L. 12/78 SCAMANDER	
SILVER ECHO PROSPECT	
GEOLOGY	
SCALE 1:200	DATE 28-10-83
AUTHOR P.A.R.	DRAWN J.L.L.
OFFICE SCAMANDER	REP.No.
DRG.No. 0/LH02/523	FIG.No.

BADEN POWELL PROSPECT

6/12/83

1.0 General Descriptiona) Style of Mineralization

Large 20-75 cm wide quartz veins containing irregularly distributed wolframite and molybdenite mineralization.

b) Host Rocks

Host rocks are Mathinna Beds. Here they are dominantly very highly metamorphosed shales with minor intercalated fine grained sandstone beds.

c) Location

Baden Powell prospect is located on the western side of Wolfram Creek Road and is on the north facing side of a low E-W trending ridge. The prospect is 600m from the nearest exposure of the Constable Creek Granite.

d) Old Workings

At Baden Powell there are numerous small exploratory pits and large trenches. The larger trenches are upto 90m long and up to 5-6m deep. These trenches are located on the 6 major mineralized veins. Here mineralized quartz vein material has been selectively mined. Groves (1972) reports that about 1 tonne of wolframite has been removed from the prospect.

2.0 Host Rocksa) Lithology

Host rocks to the Baden Powell prospect are highly metamorphosed shales and fine grained sandstones of the Mathinna Beds. Sandstone beds are rare and are less than 0.5m thick. Shale lithology is dominant.

b) Bedding/Cleavage/Folds

Poor exposure limits the number of bedding orientations that can be measured. The sterio plot and field observation shows low buckling and folding about an axis which plunges 52° - 275 , which is almost perpendicular to regional folding in the Mathinna Beds. Small scale buckling can be observed in the west wall of the main pit. Here the buckle in bedding is about 1m in size.

Cleavage orientation is consistent throughout the prospect. It can be found both parallel, and at a high angle to bedding. Sterio plot of cleavage in shale shows that it has a NNW trend with near vertical dips. Cleavage is parallel to the regional fold axial plane and is not related to local small scale buckles and folds.

c) Faults

A breccia zone is located 3m west of the main pit. This is a clastic breccia of angular fragments of Mathinna rocks upto 5cm long, held by a euhedral vuggy quartz matrix. Quartz forms as perfect euhedral crystals upto 5mm long. Rare fine wolframite blades can be found associated with vuggy quartz.

No evidence of shearing has been found at the prospect.

Mineralized veins pinch and swell along strike and down dip. They have an elongate lensoid shape. Groves (1972) suggests they may be Tension Gash filling perhaps associated with regional structures.

A slight, but definite strike change can be observed in the largest of the mineralized veins.

d) Metamorphism

Host Mathinna group rocks are metamorphosed to a high grade. Hand specimen inspection of fine grained sandstones indicate that they locally approach cordierite hornfels facies grade of metamorphism. Shales are also highly metamorphosed. Contact metamorphism having caused accentuation of the cleavage so that in isolated occurrences shales are best described as white mica schists.

Spotting in shales is extremely intense. Dark coloured spots are individually 2mm in diameter. In isolated samples spots cover 30-40% of a freshly broken surface.

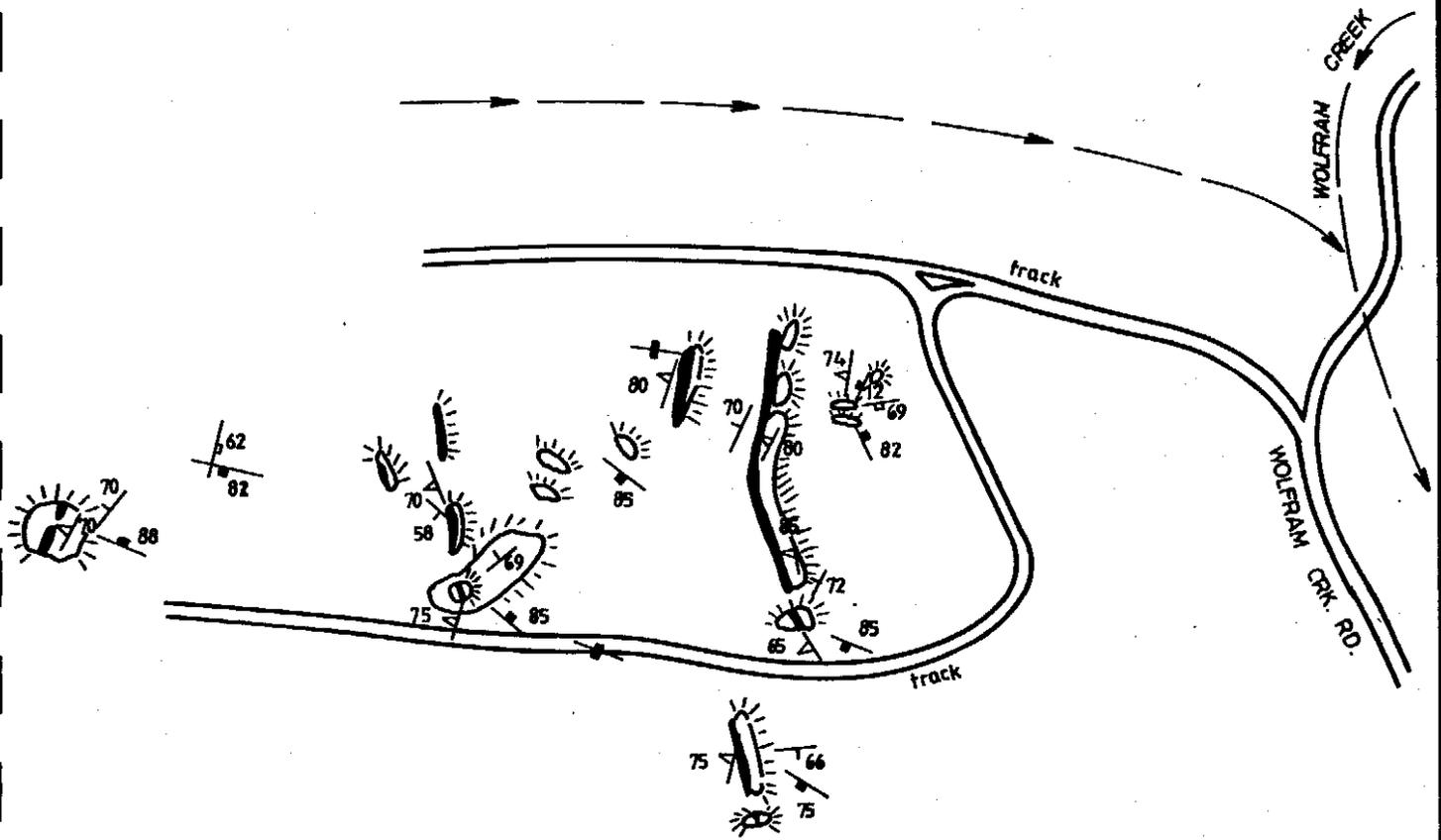
e) Alteration

Small isolated occurrences of fine grained sandstone are cut by swarms of fine quartz veins. Associated siliceous alteration has resulted in the formation of small irregular patches of quartzite.

3.0 Gross setting/Type/Style

Mineralization is confined to NNE-NE trending quartz veins. Veins are 20-75 cm thick and pinch and swell along strike. Curved sides and lensoid shape indicate that the veins may be tension gash fills. Veins are subparallel with a spacing of about 20m. The veins are perpendicular to the regional fold axis and crosscut local small folds, buckles and the cleavage.

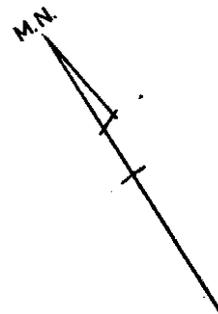
These veins at Baden Powell are parallel to the mineralized veins at Pyramid and could possibly be feeders to a Pyramid style deposit. WO_3 bearing veins at Baden Powell are very similar to the WO_3 bearing veins of documented Chinese deposits.



LEGEND

-  $WO_3 - Mo - QTZ.$ VEIN IN PIT
-  PIT WITH DUMP
-  STRIKE / DIP BEDDING
-  STRIKE / DIP JOINTING
-  STRIKE / DIP $QTZ.$ VEIN ($WO_3 - Mo$)
-  STRIKE / DIP CLEAVAGE

5 cm

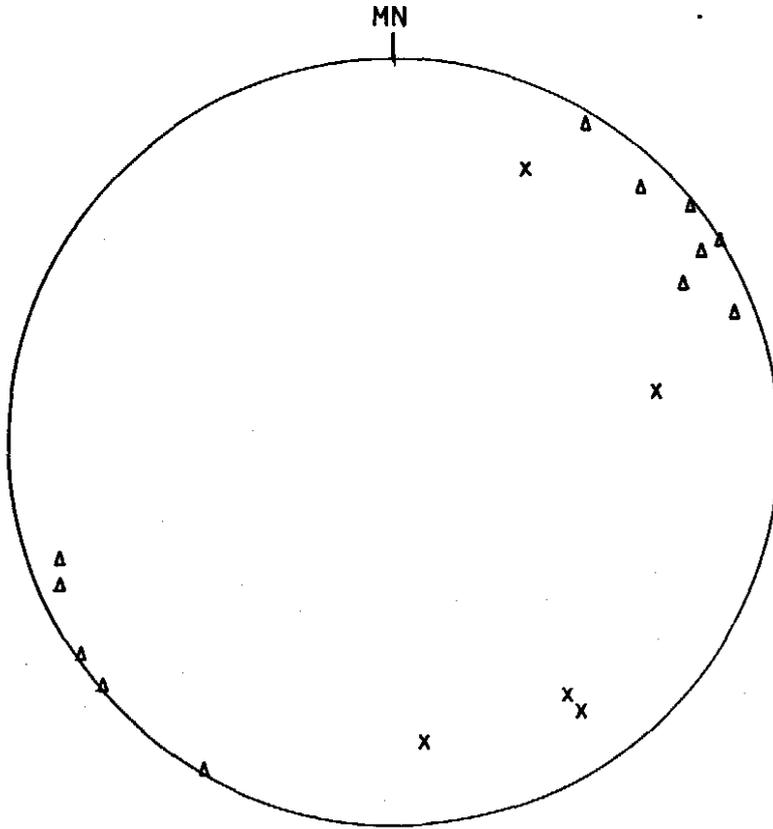


0 50m
APPROXIMATE SCALE

The Shell Company of Australia Limited METALS DIVISION	
E.L. 12/78 SCAMANDER	
BADEN POWELL PROSPECT	
SKETCH MAP	
SCALE 1:1500	DATE 6-12-83
AUTHOR G.J.P.	DRAWN J.L.L.
OFFICE SCAMANDER	REP.No.
DRG.No. D/LH02/517	FIG.No.

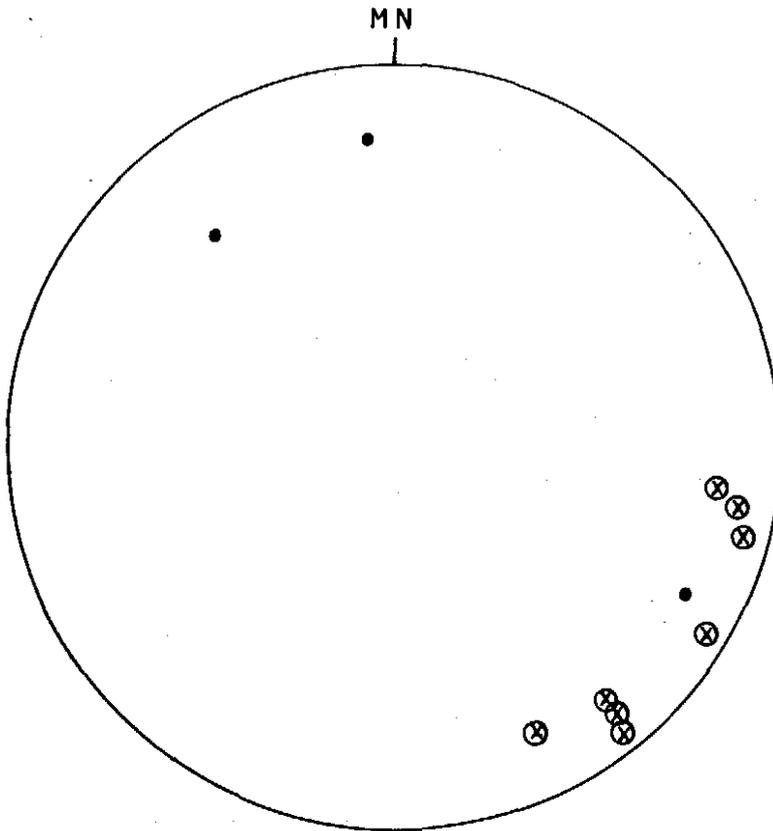
BEDDING
CLEAVAGE IN SHALES

x n = 5
Δ n = 10



MINERALIZED VEINS

⊗ n = 8
• n = 3



- x bedding
- Δ cleavage
- ⊗ mineralized veins.
- fractures.

5 cm

LAMBERT EQUAL AREA NET

The Shell Company of Australia Limited METALS DIVISION	
E.L.12/78 SCAMANDER	
BADEN POWELL	
STEREO NETS	
SCALE	DATE 25-7-86
AUTHOR P.A.R.	DRAWN J.L.L.
OFFICE D'PORT	REP.No.
ORG No 0/LH02/562 FIG No	

CARSON DE BEER'S (PRICE'S) PROSPECT1.0 General Descriptiona) Style of Mineralization

Large 20-40 cm wide quartz-tourmaline veins containing irregular distributed wolframite and minor molybdenite mineralization. Wolframite occurs in crystals upto 75mm in length. Minor pyrite and chalcopyrite mineralization is reported by Groves (1972).

b) Host Rocks

Mathinna Beds - Host Mathinna beds consist almost entirely of shale lithologies in the eastern part of the prospect. These grade westerly into intercalated sandstones, siltstones and shale and then into quartzites in the western most part of the prospect.

c) Location

Carson de Beers prospect is located just north of Loila Tier Road about 600m east from the intersection of Wolfram Creek Road. The prospect is 900m from the nearest exposure of the Constable Creek granite located to the northwest.

d) Old Workings

There are numerous small pits scattered across the prospect. These are unmarked on the accompanying map. 5 large pits have mineralized veins exposed within them. Some of the pits have been extended and opened up by use of a bulldozer by a later exploration company.

2.0 Host RocksMathinna Bedsa) Lithology

Lithologies in the eastern half of the prospect are unmetamorphosed pink-mauve shales. They have a fairly well developed cleavage and no spotting.

Spotting appears and progressively increases towards the west. To the west the shale lithology grades into interbedded sandstone/siltstone/shale lithologies and then into quartzites at the western end of the prospect.

b) Bedding/Cleavage/Folds

Bedding in host sediments in the prospects strikes consistently NNW and dips steeply to the east. The prospect is located in the limb of a regional fold. A few bedding measurements give NE strikes with steep NW dips. These readings probably take in the limb of a small buckle fold oriented parallel to buckle folds at Baden Powell prospect.

Cleavage consistently strikes NNW and has steep dips to the east. This is axial plane cleavage to regional folding.

c) Joints/Veins

There are four principal joint directions in host sediments at Carson de Beers prospect. One set has variable strikes and is flat lying. A second set strikes E-W and dips steeply to the north. Two other sets have a NNE strike and steep west dips and NNW strikes and steep easterly dips.

Mineralized veins tend to strike NE and dip steeply towards the NW. This is parallel to the mineralized veins at Baden Powell prospect and Great Pyramid. These could be source veins for Pyramid-style mineralization. The anomalous mineralized veins strike NNW with vertical dip.

d) Metamorphism

Metamorphism at Carson de Beers is strictly low grade. Shale lithologies in the east are virtually unmetamorphosed. No spots are visible. Low grade metamorphism is evident in the western part of the prospect. Metamorphic spotting becomes visible.

e) Alteration

In the western part of the prospect sandstone units are cut by swarming of irregular quartz veins. Silic alteration associated with these vein swarms has caused formation of small irregular patches of quartzite. The larger mineralized veins occur in brittle sandstone/siltstone/shale and quartzite lithologies. Tourmaline reaches high concentrations in the mineralized veins and strong tourmaline alteration of host rocks is evident in this area.

3.0 Gross Setting/Type/Style

Mineralization is confined to large 20-40 cm wide quartz-tourmaline veins. The veins generally have NE strikes and steep NW dips with one anomalous NNW striking vein with vertical dip. The veins are irregular, pinching and swelling along strike. The veins crosscut the regional fold axis and small buckle folds. These veins are probably feeder veins for a Pyramid-style deposit located higher in the hydrothermal sequence.

LEGEND

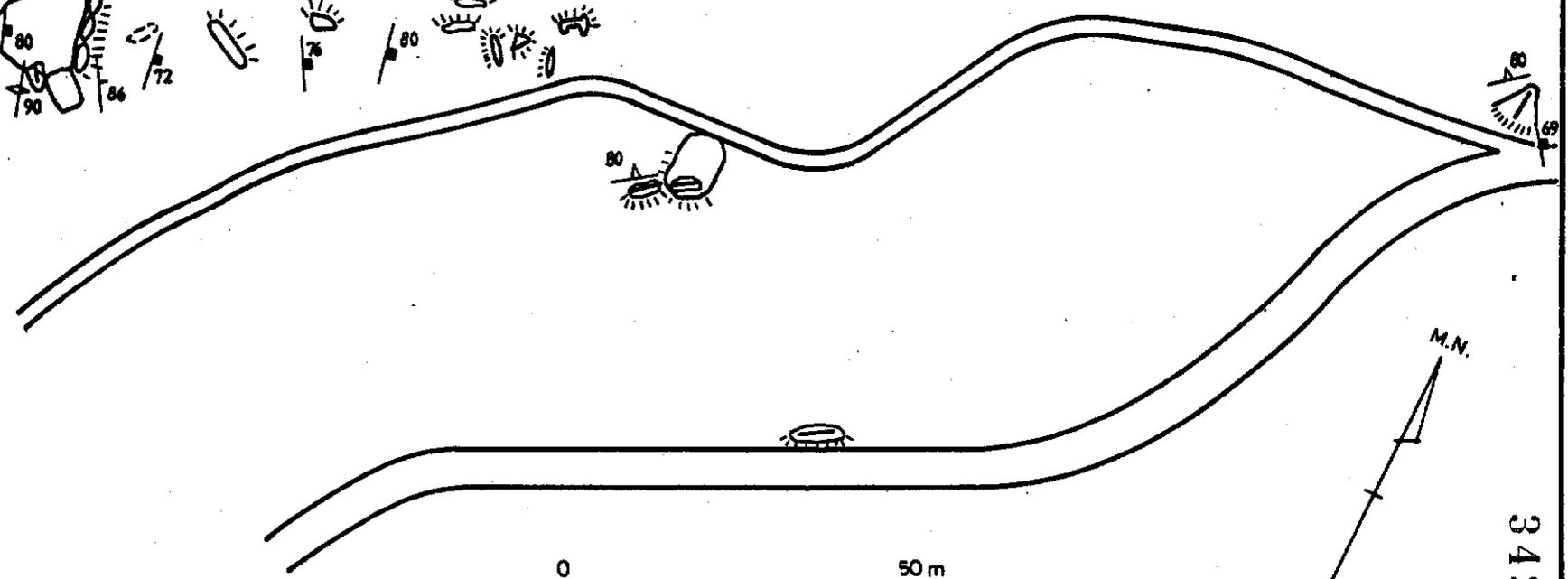
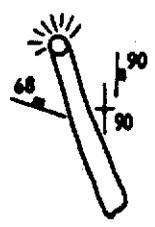
- WO₃ MINERALIZED QTZ. VEIN IN PIT.
- PIT WITH DUMP
- STRIKE / DIP BEDDING
- STRIKE / DIP JOINTING
- STRIKE / DIP WO₃ MINERALIZED QTZ VEIN
- STRIK / DIP CLEAVAGE
- OUTCROP

5 cm

QUARTZITES

SANDSTONE / SILTSTONE / SHALE

SHALE



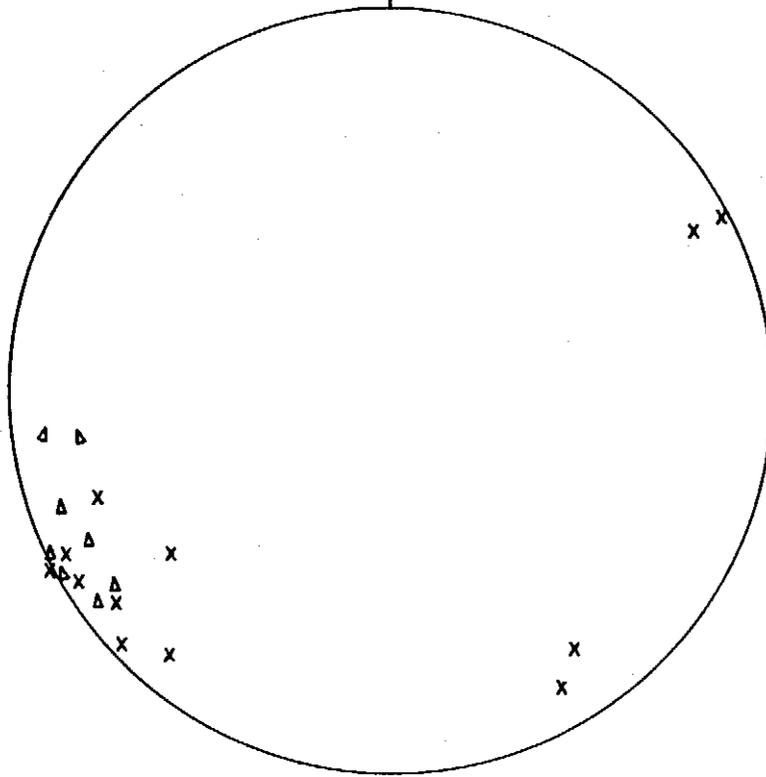
0 ————— 50 m
 APPROXIMATE SCALE

342154

The Shell Company of Australia Limited METALS DIVISION	
E.L.12/78 SCAMANDER	
CARSON de BEERS PROSPECT	
SKETCH MAP	
SCALE	DATE 6-17-63
AUTHOR G.J.P	DRAWN J.L.L.
OFFICER SCAMANDER	REP. No.
ORG. No. D/LLH02/516	FIG. No.

BEDDING
CLEAVAGE

MN

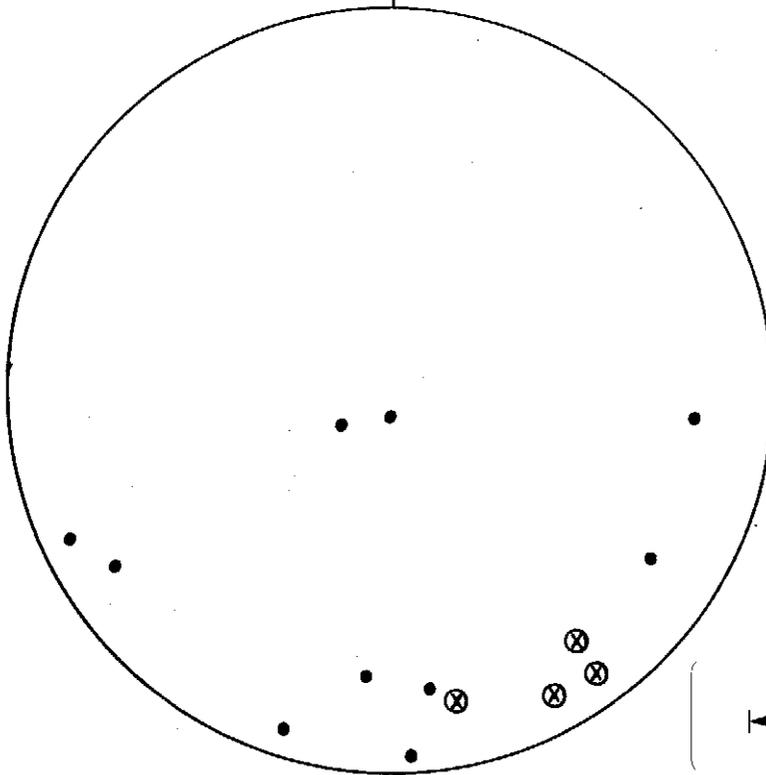


x n = 11

Δ n = 8

MINERALIZED VEINS

MN



x n = 4

• n = 10

- x bedding
- Δ cleavage
- ⊗ mineralized veins
- joints

5 cm

The Shell Company of Australia Limited METALS DIVISION	
E.L. 12/78 SCAMANDER	
CARSON DE BEERS	
STEREO NETS	
SCALE	DATE 25-7-86
AUTHOR P.A.R.	DRAWN J.L.L.
OFFICE D'PORT	REP.No.
DRG No 0/LH02563	FIG No

LOILA TIER PROSPECT

19/10/83

(& EAST AND WEST WILLIAMS PROSPECTS)1) General Descriptiona) Style of Mineralization

Fault-related cassiterite/tourmaline at Loila Tier and quartz sulphides at Williams Prospects. Mineralization associated with silicification plus gossanous capping and Fe staining in Mathinna sediments.

b) Host Rocks

Mathinna Bed sediments - intercalated sandstones/siltstones/shales - sandstones predominate around the actual Loila Tier Prospect. - Siltstones and shales more common around the Williams Prospects. Shales wouthwest of Loila Tier pits are spotted.

c) Geography/Location

Loila Tier/Williams Prospects 7km due N of Upper Scamander. Access is by forestry road - Loila Tier Road.

Loila Tier Prospect lies 700m west of Loila Tier peak down a steep forestry track - pits located 200m SW of this road.

Williams Prospects located either side of the Loila Tier Road 500m N of Loila Tier Peak (on Loila Tier Road).

d) Old Workings

Two prospect pits dug on Loila Tier Prospect. Small shaft sunk on quartz/tourmaline vein by the forestry access road (N of Loila Tier). Five costeans placed by Consolidated Goldfields. A further costean placed between E and W Williams prospects - shaft on W Williams 3m deep plus two pits on E Williams prospect.

2) Host RocksMathinna Beds

Lithology - Outcrop in the Loila Tier area is poor - rocks crop out in creeks and on steep ridge slopes. Mixture of sandstone/siltstone/shale. Siltstones and shales may be finely bedded. Sandstones generally massive. Shales cleared and often spotted - black shales SW of the Loila Tier Prospect.

Bedding/clearage/folds - Beds generally strike NNW and dip to the west (probably young to the west also). Variable dip from steep to gentle.

Beds form a fold structure on stereonet with poles indicating a bipole girdle - fold axis plunging 14° to 170° . This distribution suggests cylindrical folding - no minor folds observed in this area.

Two measured cleavage traces are related to the fold hinge and therefore were probably formed during this SSE folding phase.

Faults/fractures/veins

Faults - NE trending Loila Tier fault is the dominant fault (060°) - this is the only mineralized fault direction in the area.

Fractures - Variable orientation Urquhart (1968) suggests 050° to 070° fractures in the vicinity of Loila Tier. Measurements taken by the author indicate NE - ENE trending joints/fractures common - generally contain Fe oxide staining - close to Loila Tier Prospect may also contain Fe oxide fills.

Veins - Around Loila Tier Prospect quartz/tourmaline veining is common - generally in sandstone beds. Two vein directions probably orthagonal - see attached stereonet plot.

1) E - W (ENE - WSE) trend is the dominant measured trend. Well exposed in pit by forestry road 200m N of Loila Tier Prospect (see plan). One sample assays 1500ppm Sn from this pit. This particular vein (vein swarm) can be traced up the ridge to the top of Loila Tier Peak.

2) NE trending quartz/tourmaline veins parallel to the Loila Tier fault - not very common. Tourmaline rock breccia occurs on the fault-line at Loila Tier Prospect.

Several random tourmaline/quartz veins seen and measured. Quartz/tourmaline float can be observed along the NE strike of Loila Tier fault.

Quartz veins have a fairly random distribution - Urquhart (1968) suggests they are dominantly parallel to Loila Tier fault.

Metamorphism

Strong to faint spotting visible in the black shales SW of Loila Tier Prospect. Granite fairly close to the surface here. Spotting not observed up by the Williams Prospects.

Alteration

Fe oxides in fractures and surfaces common close to the Loila Tier fault zone - also present on the Loila Tier Peaks.

Silicification generally confined to the vicinity of the Loila Tier fault - also occurs on the Loila Tier Peaks.

Secondary silicification related to fractures in sandstone units observed in Williams costean.

3) Mineralization

Gross Setting/Dimensions/Types

Mineralization is essentially associated with the Loila Tier Fault.

Mineralogy and style of mineralization changes along the fault from

- a) Cassiterite/tourmaline/quartz around Loila Tier Prospect to
- b) Quartz vein plus sulphides at the Williams Prospect and in costean 200m N of Loila Tier Prospect.

Fault zone in excess of 1.5km long - trends NE (060°).

Loila Tier and Williams Prospects lie on the fault line which can be traced by gossanous cappings and quartz vein material. Several pits and trenches occur along this strike length with quartz sulphide veins exposed in a creek and on a ridge (see plan).

Loila Tier Prospect - 2 pits located on the fault zone which is estimated at 8m wide and dips steeply to the SE.

Urquhart (1968) suggests fault a wrench fault due to the presence of near-horizontal slicken sides in tourmaline veins.

Mathinna Beds silicified and brecciated - tourmaline and chlorite breccia fills. Cassiterite occurs as encrustations, crystals and dissemination in vugs and within the silicified and tourmaline material. NO sulphides associated with this cassiterite. The presence of prolific spotting in black shales suggests granite close to the surface. Fe staining in Mathinna Beds may indicate some sulphides present.

W Williams Prospect - Shaft 3m deep sunk on quartz vein material. Arsenopyrite the common sulphide (upto 10%).

Quartz veins very vuggy with euhedral crystal fills. Fault approximately 2m wide here.

Traces of covellite (?) plus scondite staining. Fe oxide staining of Mathinna Beds very common. Gossanous capping common surrounding this prospect.

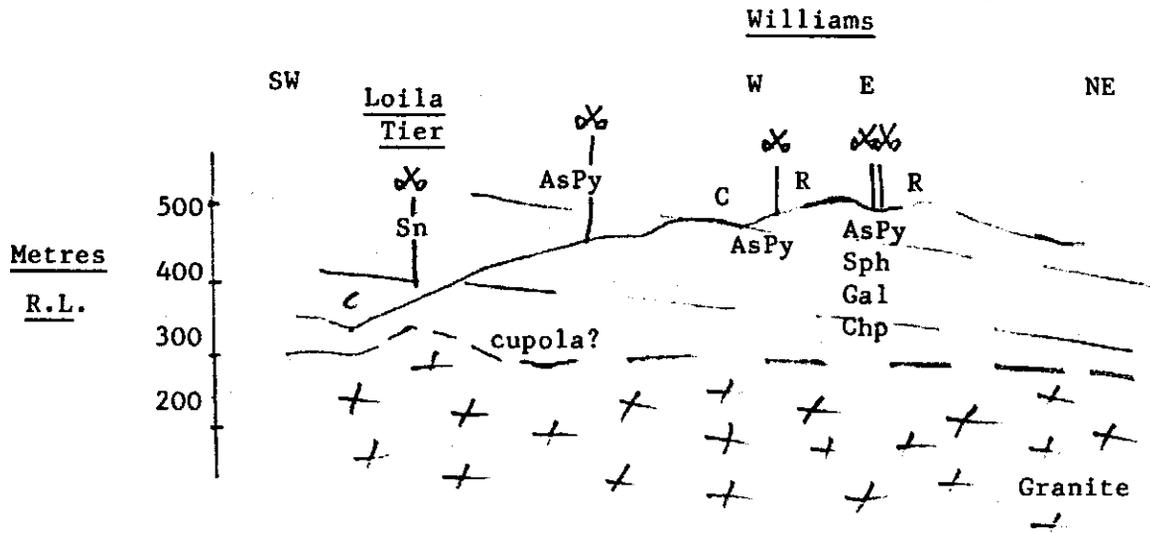
E Williams Prospect - Two pits dug on quartz veins. (E of Loila Tier Road).

Western pit - 1m quartz vein with arsenopyrite common also galena and pyrite recognized.

The easterly pit contains dominant arsenopyrite with covellite (1m wide).

Sphalerite, galena, chalcopryrite and minor pyrrhotite have also been observed at these prospect pits.

Quartz/sulphide vein occurs 200m N of Loila Tier prospect in costean. Contains arsenopyrite and high assayed Pb values. This vein occurs on the Loila Tier fault zone.



LOILA TIER PROSPECT

ROCK CHIPS

ROCK NO./LOCATION TYPE	Au	Sn	WO ₃	Mo	As	Cu	Pb	Zn	Bi	Ag
6851 Old Workings Pit Tourm. breccia in Mathinna Beds & cass.	<0.05	3.95%	70	26	290	14	12	4	65	<1
6852 Old Workings Pit Tourm. breccia in Mathinna Beds.	<0.05	1.25%	45	34	240	16	12	4	110	<1
6859 Shaft by Road Qtz & Tourm. vein	<0.05	65	<10	<4	105	6	60	6	6	<1
6860 Shaft by Road Qtz & Tourm. vein	<0.05	1500	<10	<4	65	6	55	10	20	<1
6861 Close to Shaft Qtz & Tourm. vein	<0.05	75	30	<4	28	6	150	8	12	<1
6862 Costean by Road Qtz (euh) & aspy	<0.05	70	<10	4	2.45%	230	610	200	10	5
6863 Costean by Road Qtz (euh) & aspy	<0.05	28	<10	4	7250	155	5000	22	8	2
6864 Costean by Road Qtz vein & gossan boxwork	<0.05	60	50	4	3.9%	1050	8.05%	220	110	60
6865 Close to above Costean Qtz/tourm. vein float	<0.05	70	10	<4	600	12	1100	6	6	<1
6866 E Antler Creek Meta ^m shale & minor py	<0.05	4	<10	<4	120	16	100	55	<4	<1
6867 N-S trending ridge between Loila Tier & Williams Qtz/troum. vein & gossan	<0.05	100	15	<4	190	14	26	28	24	<1
6868 Loila Tier fault trend Sil. fgsst qtz & Fe fract fills	<0.05	6	15	<4	2550	14	34	18	12	<1
6869 Loila Tier trend costean Sil fgsst/stt & qtz veins & Fe	<0.05	8	40	<4	60	12	24	38	20	<1

174

WEST WILLIAMS PROSPECT

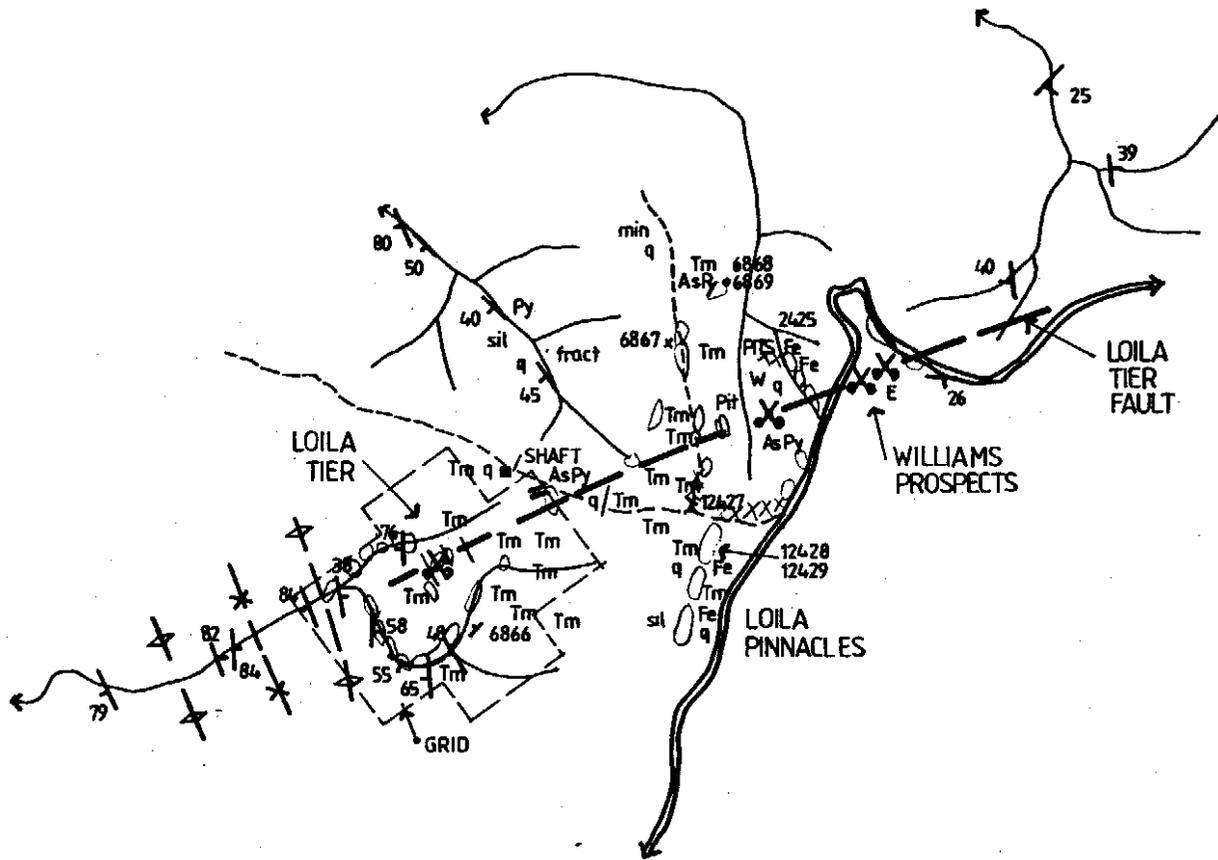
342175

ROCK CHIPS

ROCK NO/LOCATION TYPE	Au	Sn	WO ₃	Mo	As	Cu	Pb	Zn	Bi	Ag
6834 Shaft dump qtz vein & gossan	<0.05	1400	35	40	3.05%	230	4200	36	14	66
6835 Shaft dump qtz vein & aspy	<0.05	660	10	26	5.25%	190	2500	24	10	18
6836 West of shaft gossan & qtz vein	<0.05	1650	20	18	2.4%	200	2.45%	30	38	76
6837 East of shaft	<0.05	600	80	14	2300	160	3000	34	24	20

EAST WILLIAMS PROSPECT

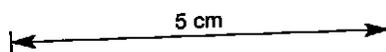
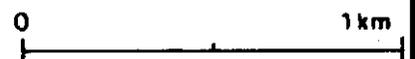
6838 just W of East William Gossan	<0.05	60	10	12	320	44	520	100	16	1
6832 East pit qtz vein & aspy, Gov? Py	<0.05	1850	20	42	3.65%	520	1700	190	6	10
12425 Costean by Williams Gossanous shale	<0.05	80	20	<4	1800	170	60	110	8	1
6833 West Pit qtz vein & aspy, gal	IS	650	25	60	10.2%	16	800	280	12	2
12426 Ridge between LT and WW qtz vein & Fe oxides	<0.05	20	40	4	1550	100	220	38	240	11
12427 Top of Loila Tier qtz/tourm vein/breccia	<0.05	165	50	<4	50	12	8	6	20	< 1
12428 Top of Loila Tier (N) sil sst & qtz/Fe fracta	<0.05	6	35	<4	840	34	20	100	8	< 1
12429 Loila Tier (N) sil sst & tm breccia, Fe	<0.05	105	50	4	46	6	6	6	20	< 1



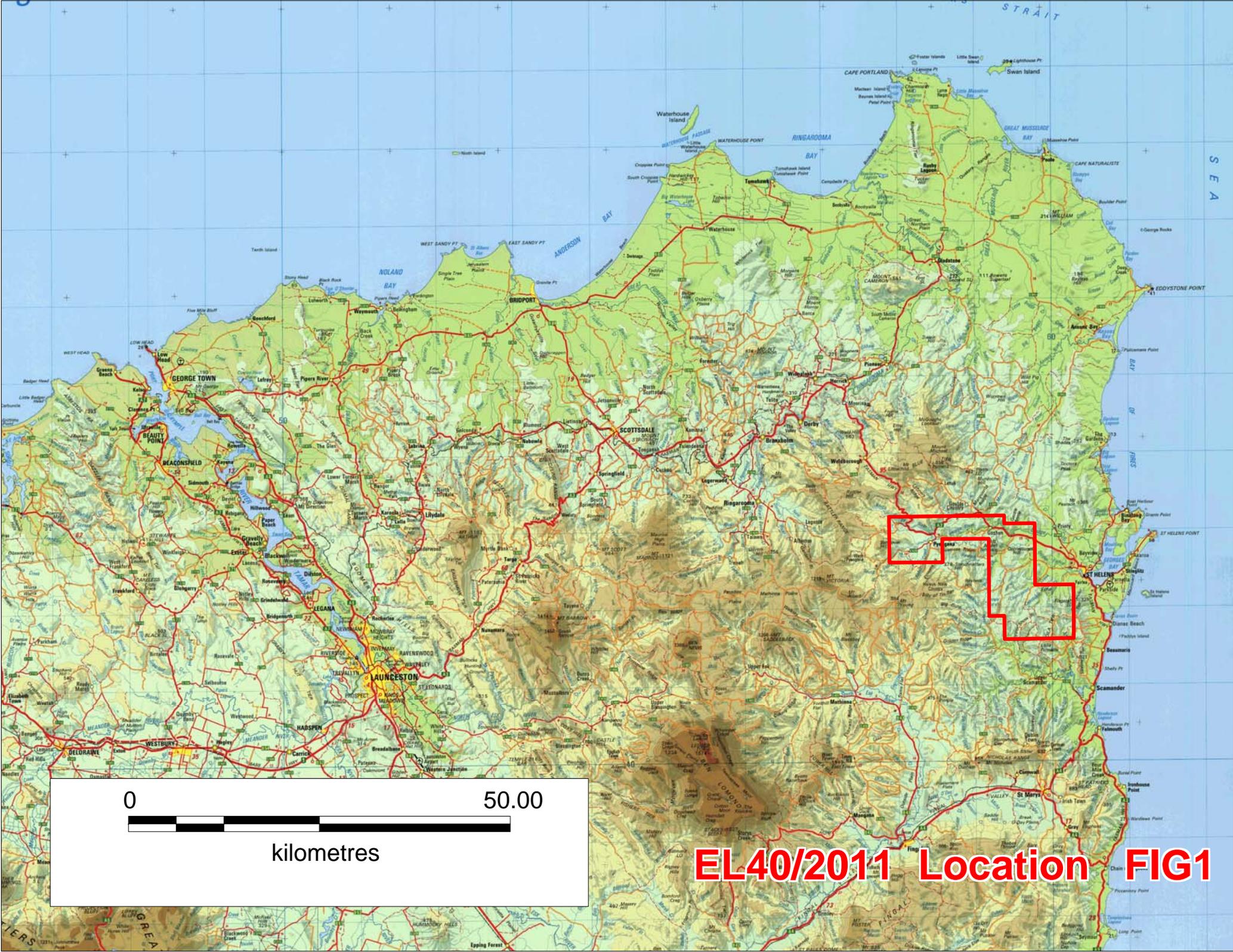
LEGEND

- Tm *TOURMALINE*
- Py *PYRITE*
- Sil *SILICIFIED*
- fract *FRACTURE*
- q *QUARTZ*
- Fe *IRON OXIDE*
- AsPy *ARSENOPYRITE*

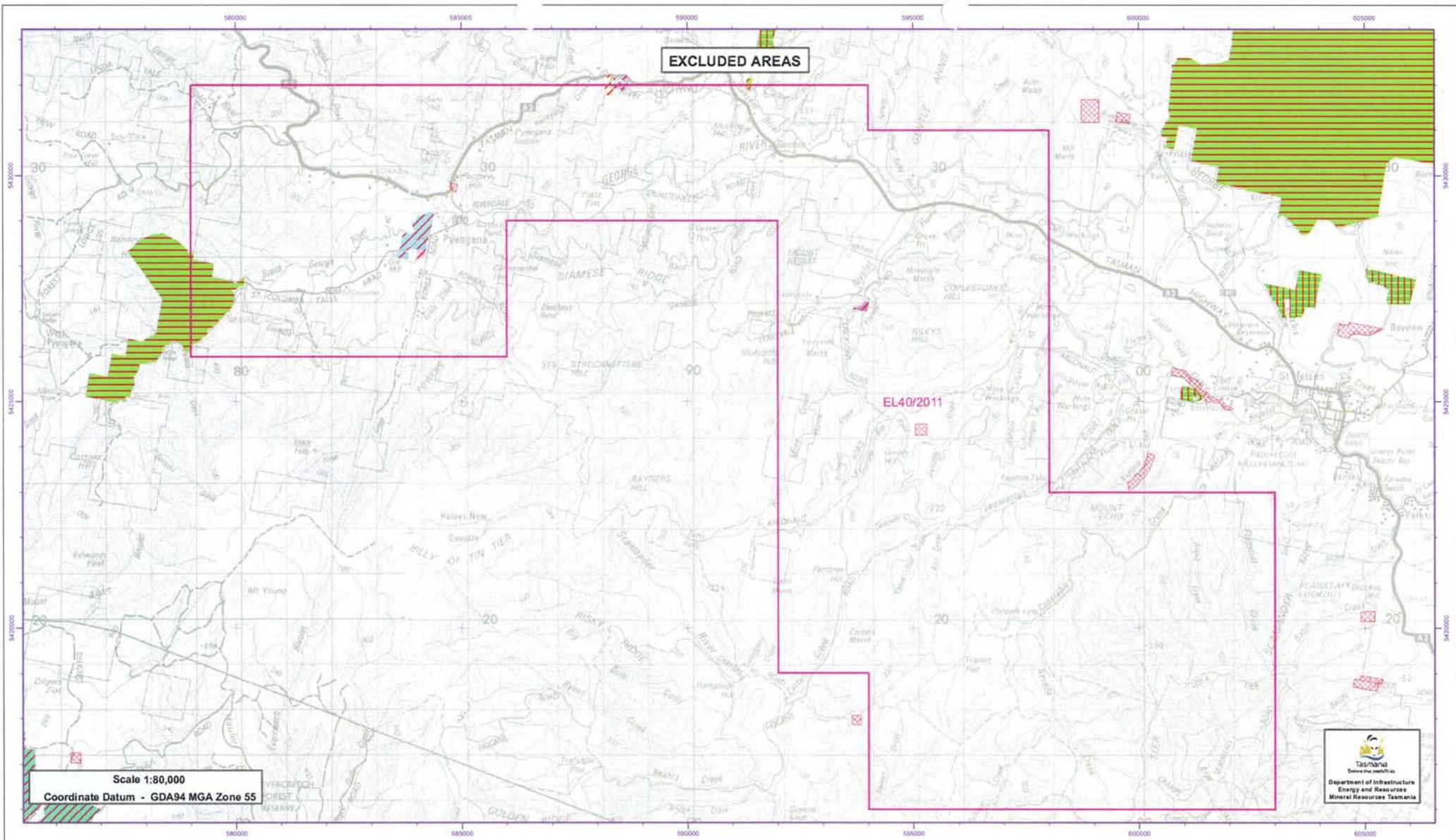
G.N.



The Shell Company of Australia Limited METALS DIVISION	
E.L.12/78 SCAMANDER	
LOILA TIER, WEST AND EAST WILLIAMS PROSPECTS.	
SCALE 1:20 000	DATE 27-7-84
AUTHOR P.A.R.	DRAWN J.L.L.
OFFICE D'PORT	REP.No.
DRG No 01/402/571	FIG No



EL40/2011 Location FIG1



Scale 1:80,000
 Coordinate Datum - GDA94 MGA Zone 55



Excluded Areas		Relevant tenement land tenure / land management area indicated *
	Exempt Area	<p>Note: Land Tenure is derived from the LIST and other sources and may be incomplete. Not all Land Tenure depicted in legend may appear on the map.</p>
	Mining Lease	
	Retention Licence	
	Fossil Site	
	Administratively Excluded Areas	
	RAMSAR Site	
	Gas Pipeline Corridor	
	Wetland Park	
	Indigenous Protected Areas	
	Commonwealth Land	
	Private Reserve - Unavailable under MRDA	
	State Reserve	
	Nature Reserve	
	National Park	
	Historic Site	
	Game Reserve	
	Conservation Area - Unavailable under MRDA	
	Forest Reserve - Unavailable under MRDA	
	Private Land (Woodsong)	
	Private Land (Correy)	
	Private Land (Taylor)	
	Private Land (Booth)	
	Private Land (Healey)	
	Private Land (Healey)	

RINGAROOMA

BLUE TIER

BINALONG

VICTORIA

PYENGANA

ST HELENS

SADDLEBACK

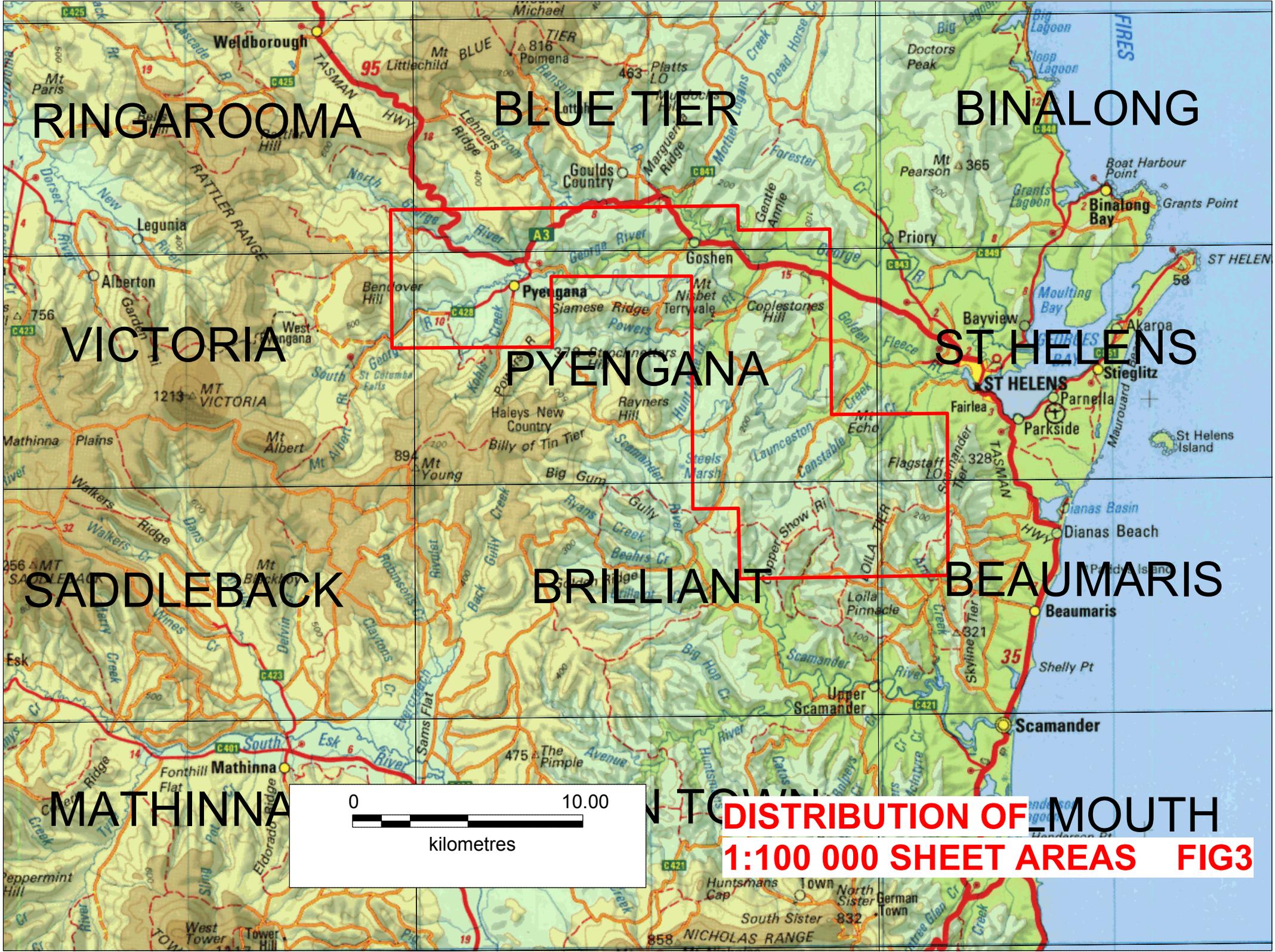
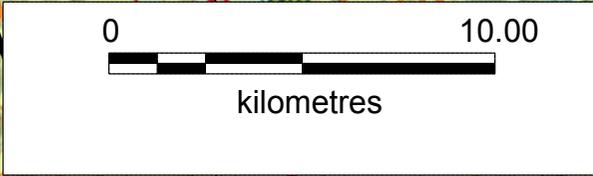
BRILLIANT

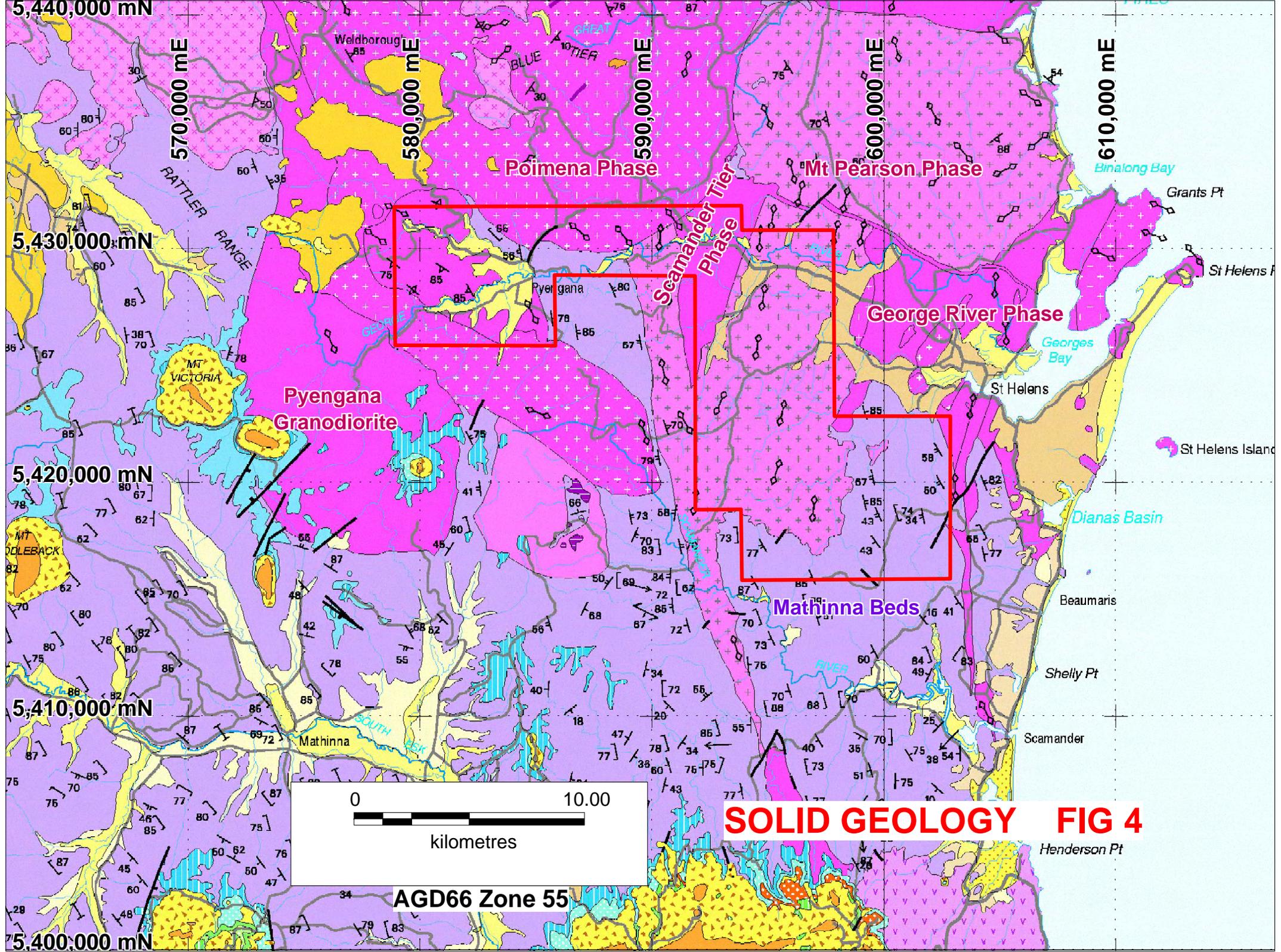
BEAUMARIS

MATHINNA

DISTRIBUTION OF MOUTH

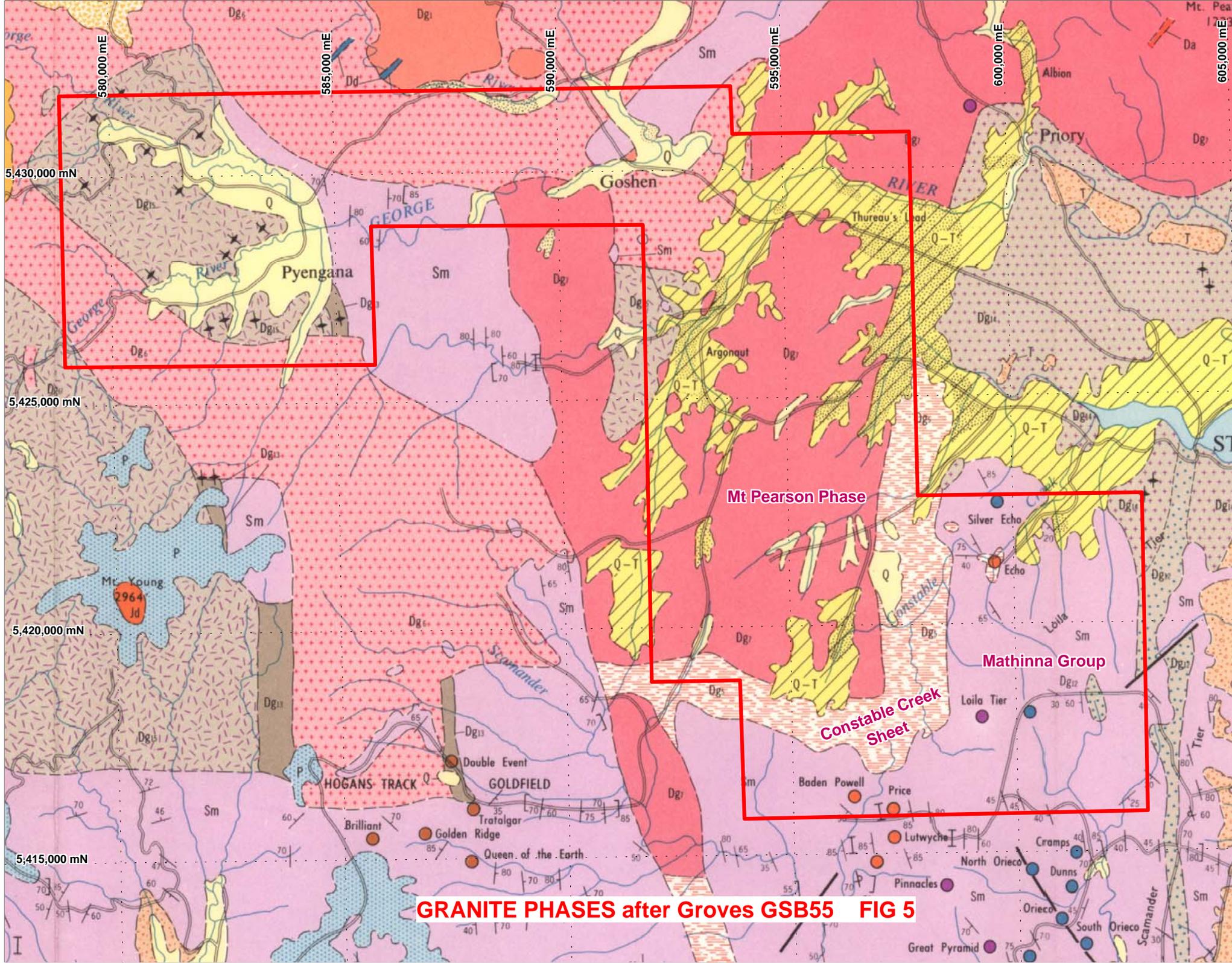
1:100 000 SHEET AREAS FIG3





SOLID GEOLOGY FIG 4

AGD66 Zone 55



GRANITE PHASES after Groves GSB55 FIG 5

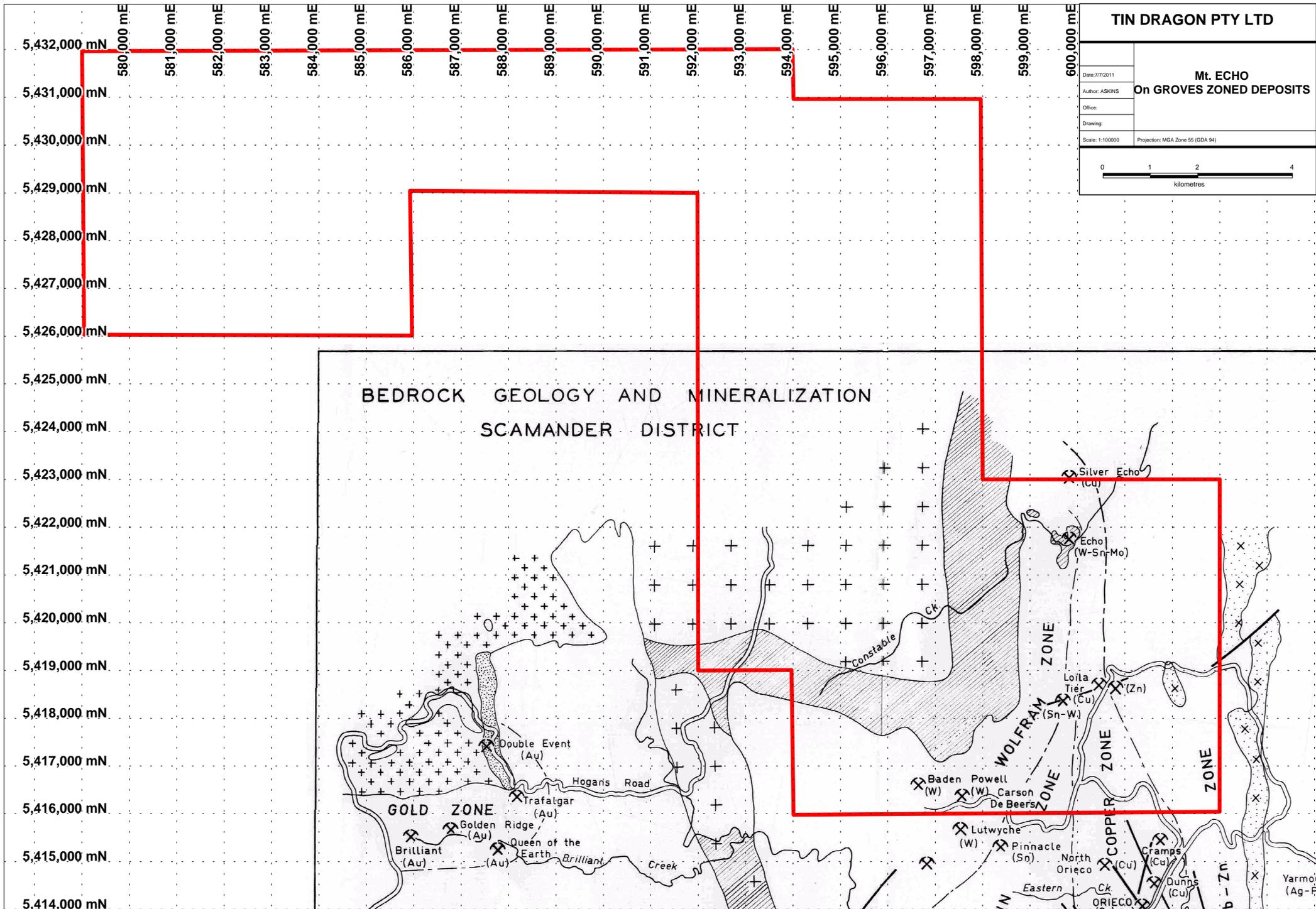
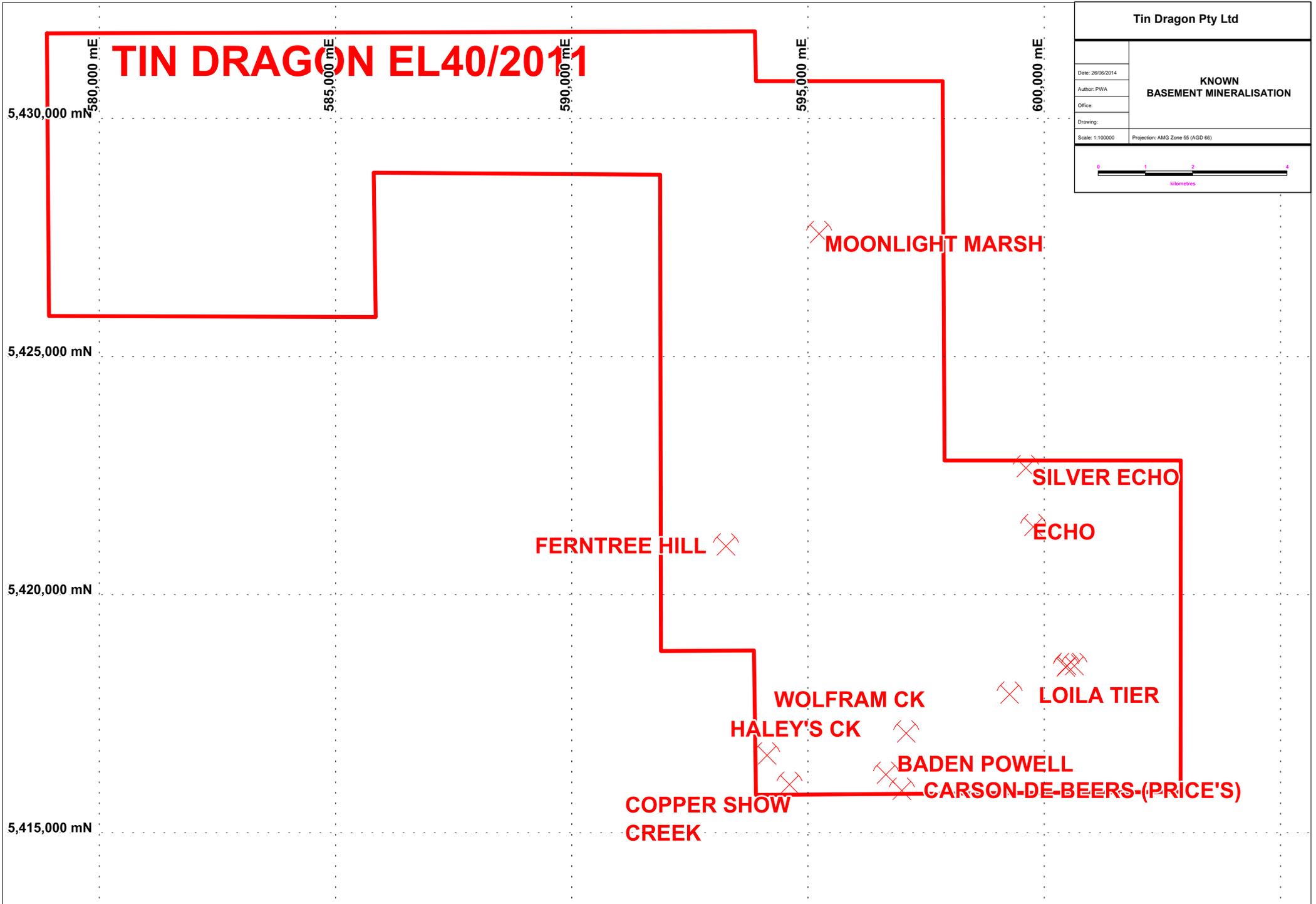


FIG 6



Tin Dragon Pty Ltd	
KNOWN BASEMENT MINERALISATION	
Date: 26/06/2014	
Author: PWA	
Office:	
Drawing:	
Scale: 1:100000	Projection: AMG Zone 55 (AGD 66)
<p>Kilometres</p>	

FIG 7

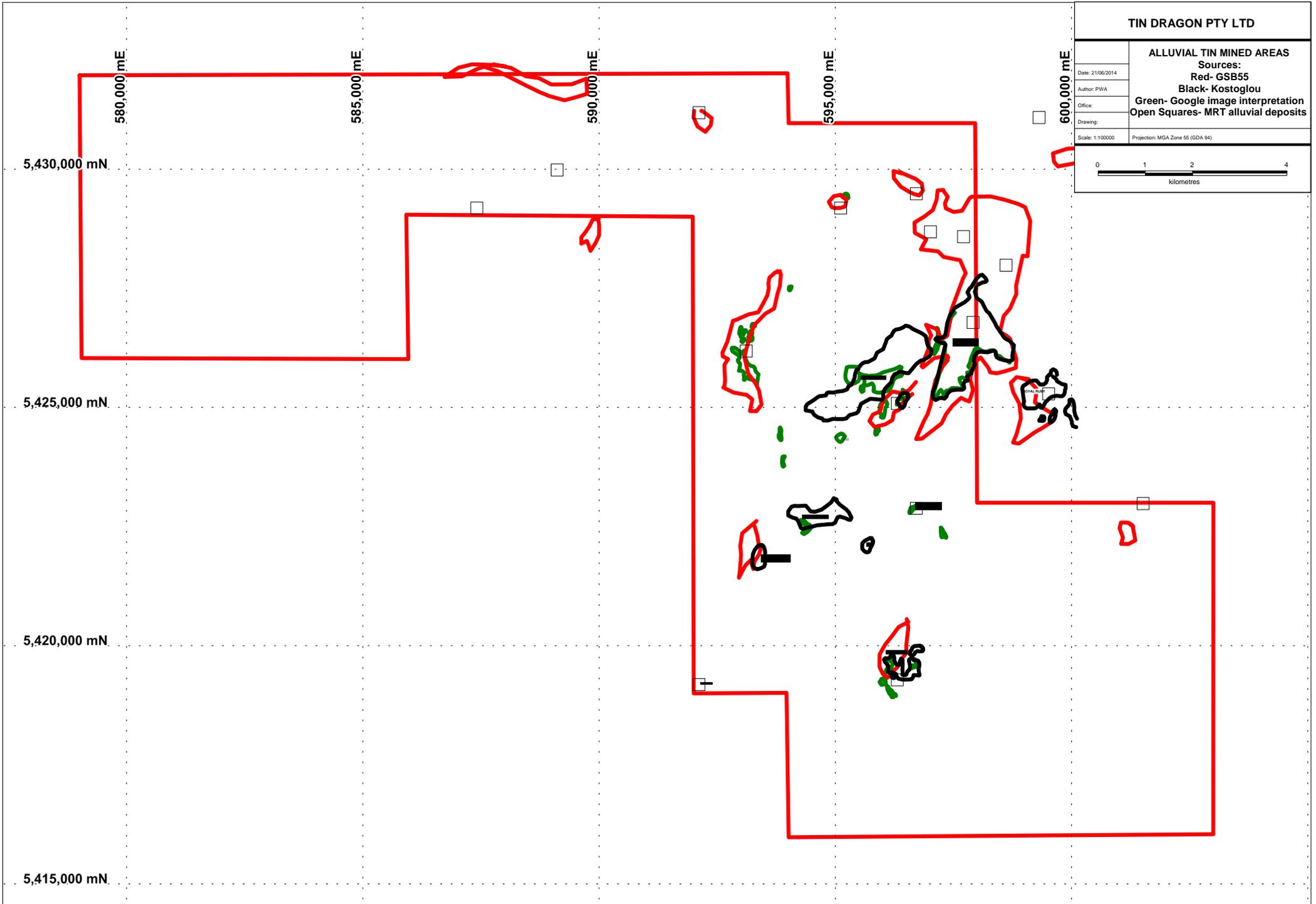


FIG 8

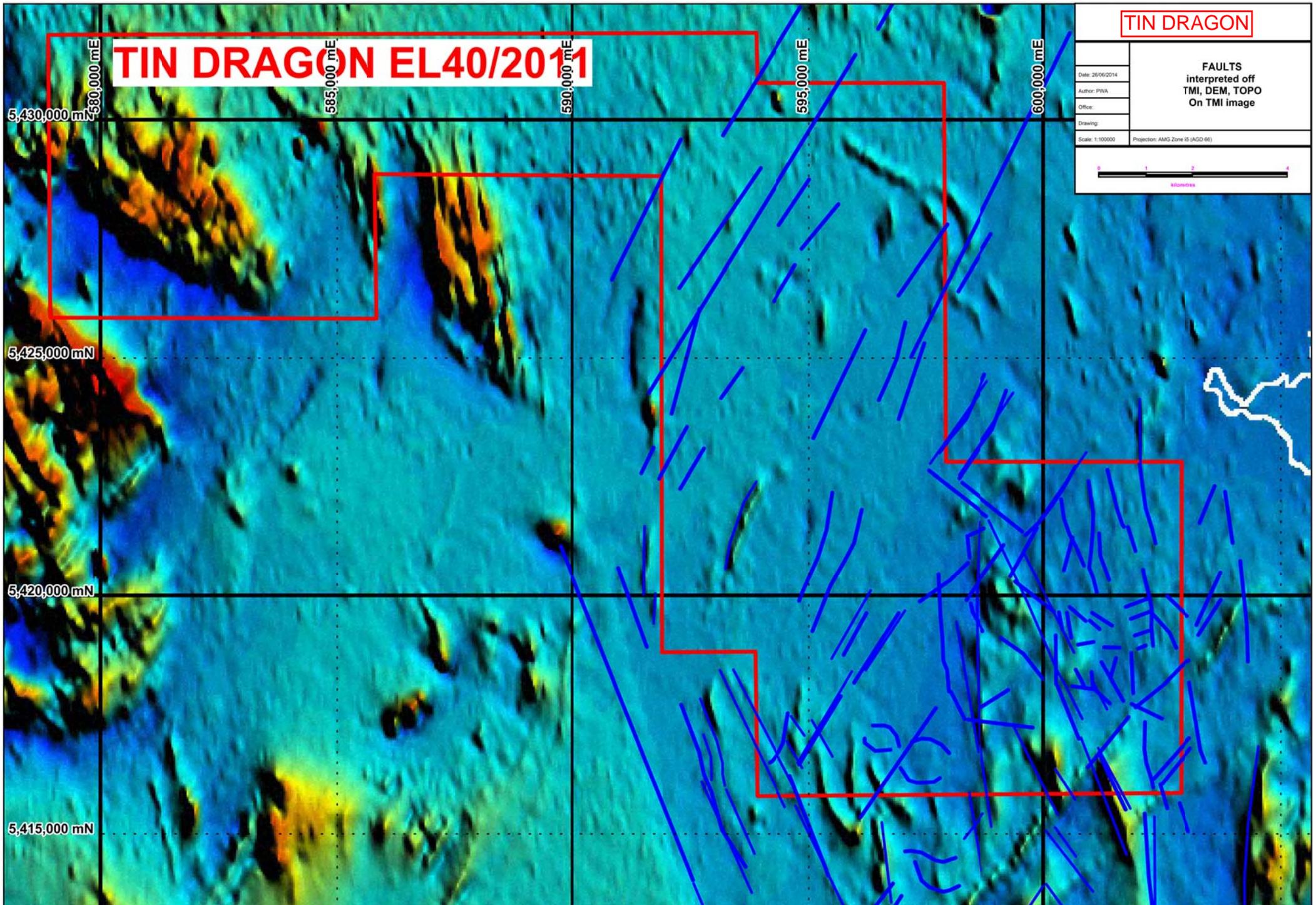


FIG 9

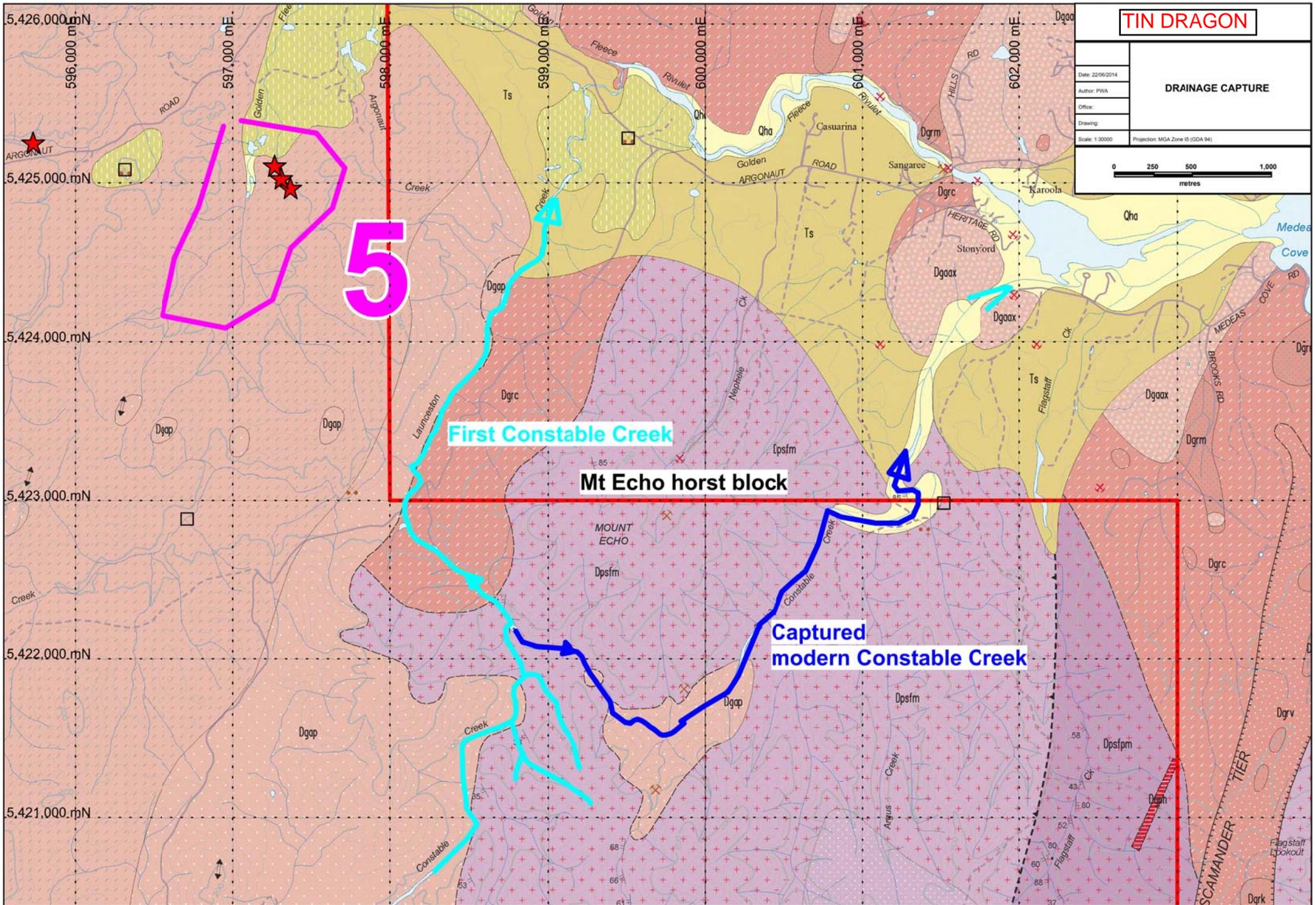


FIG 10

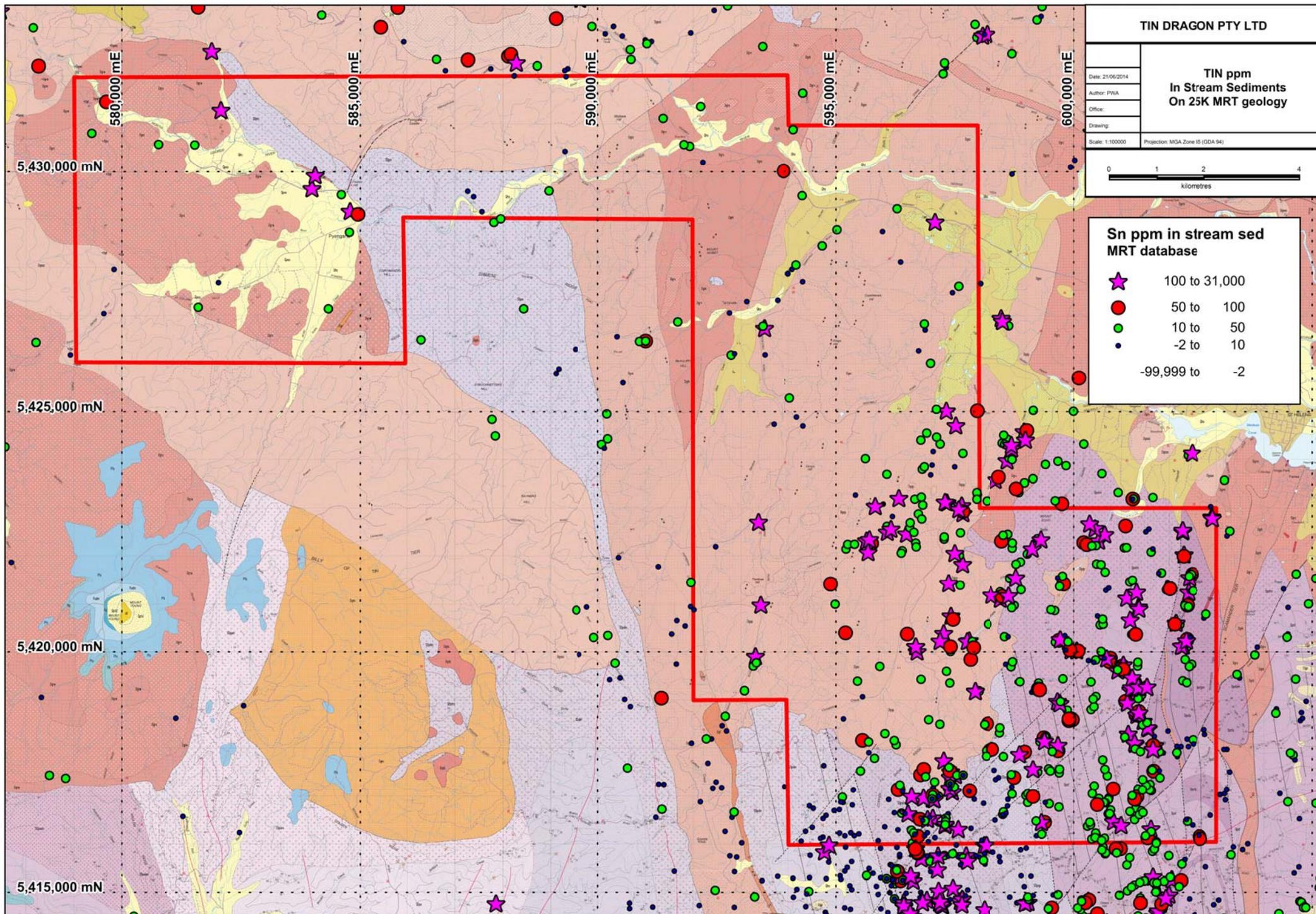


FIG 11

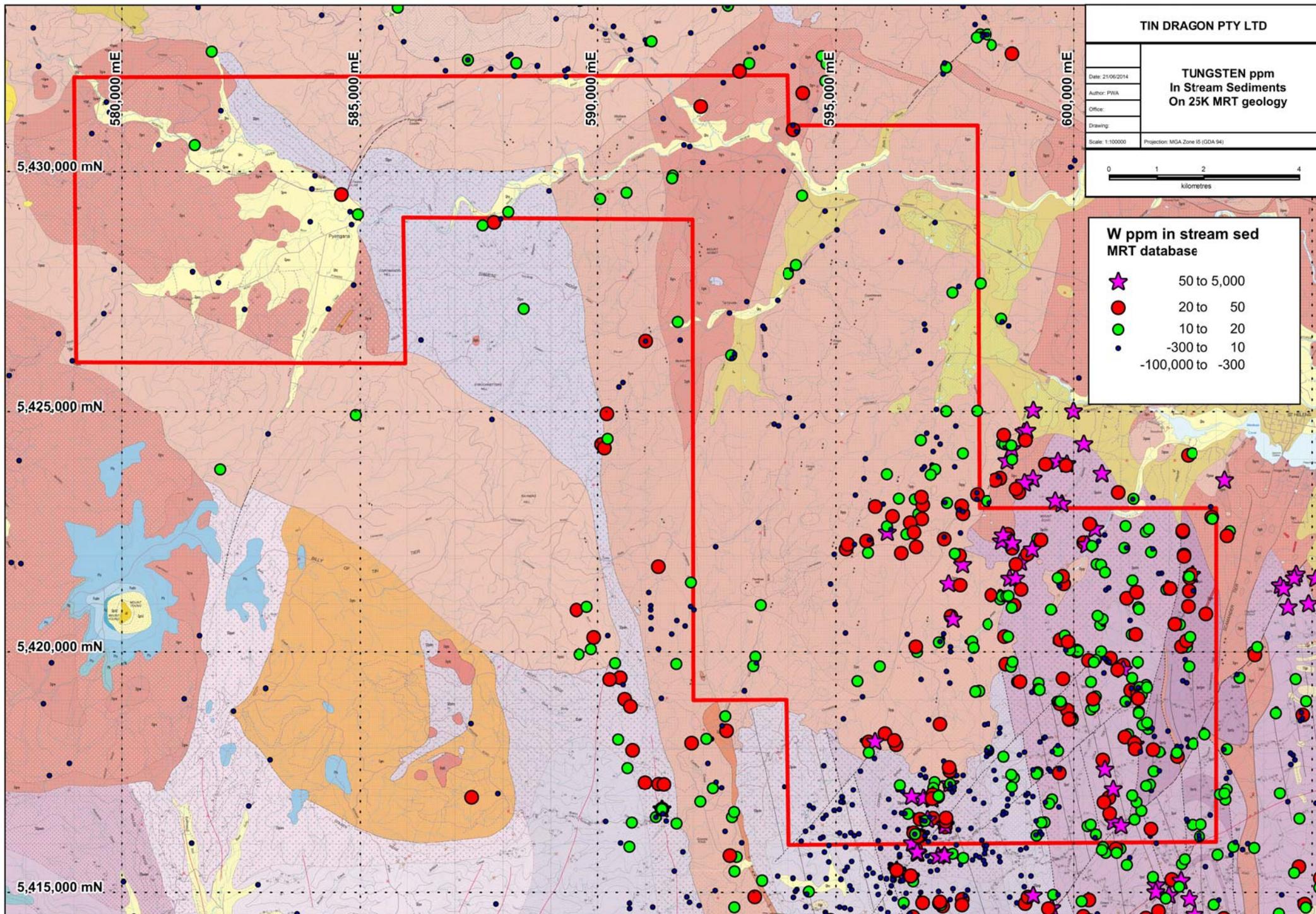


FIG 12

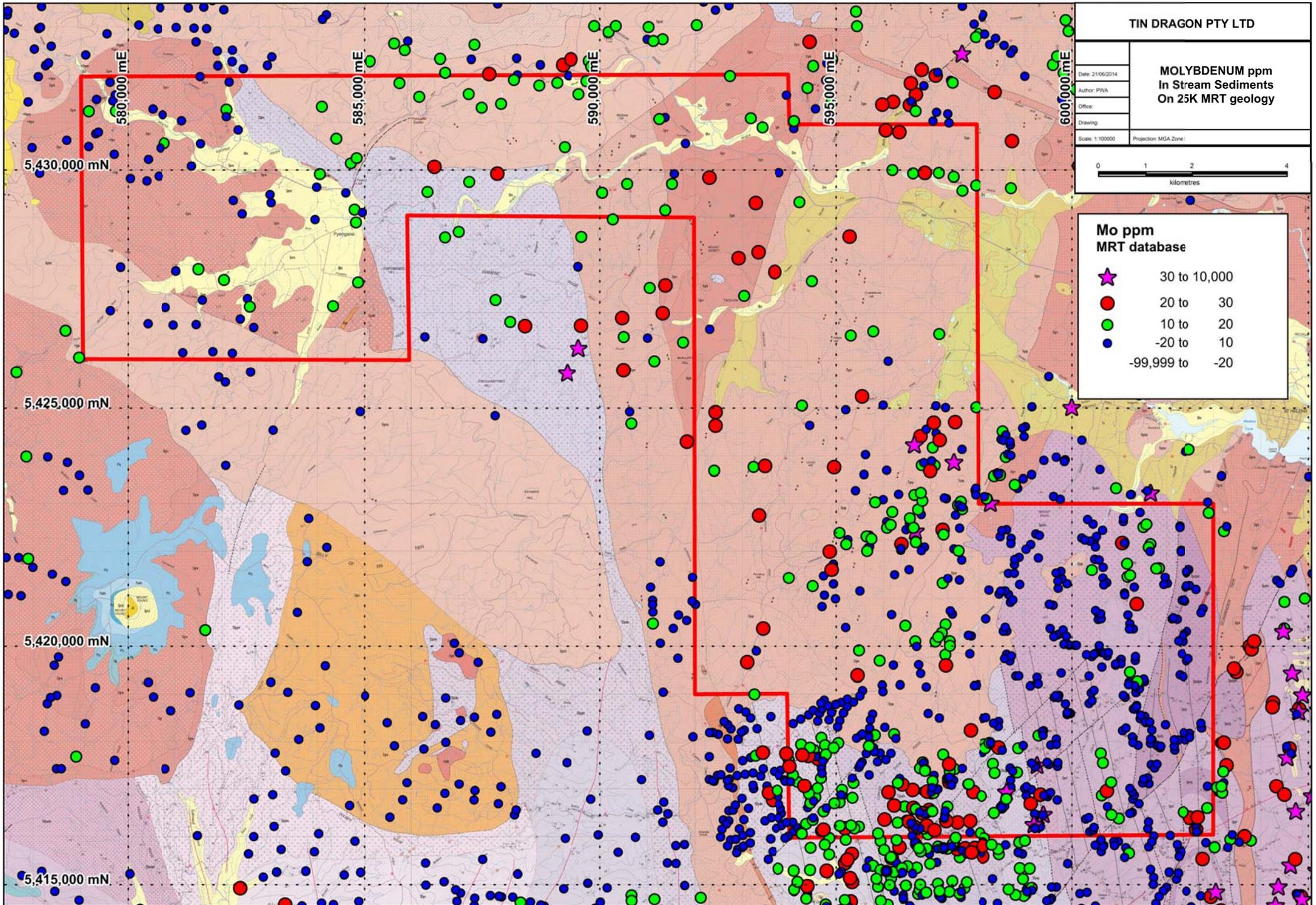


FIG 13

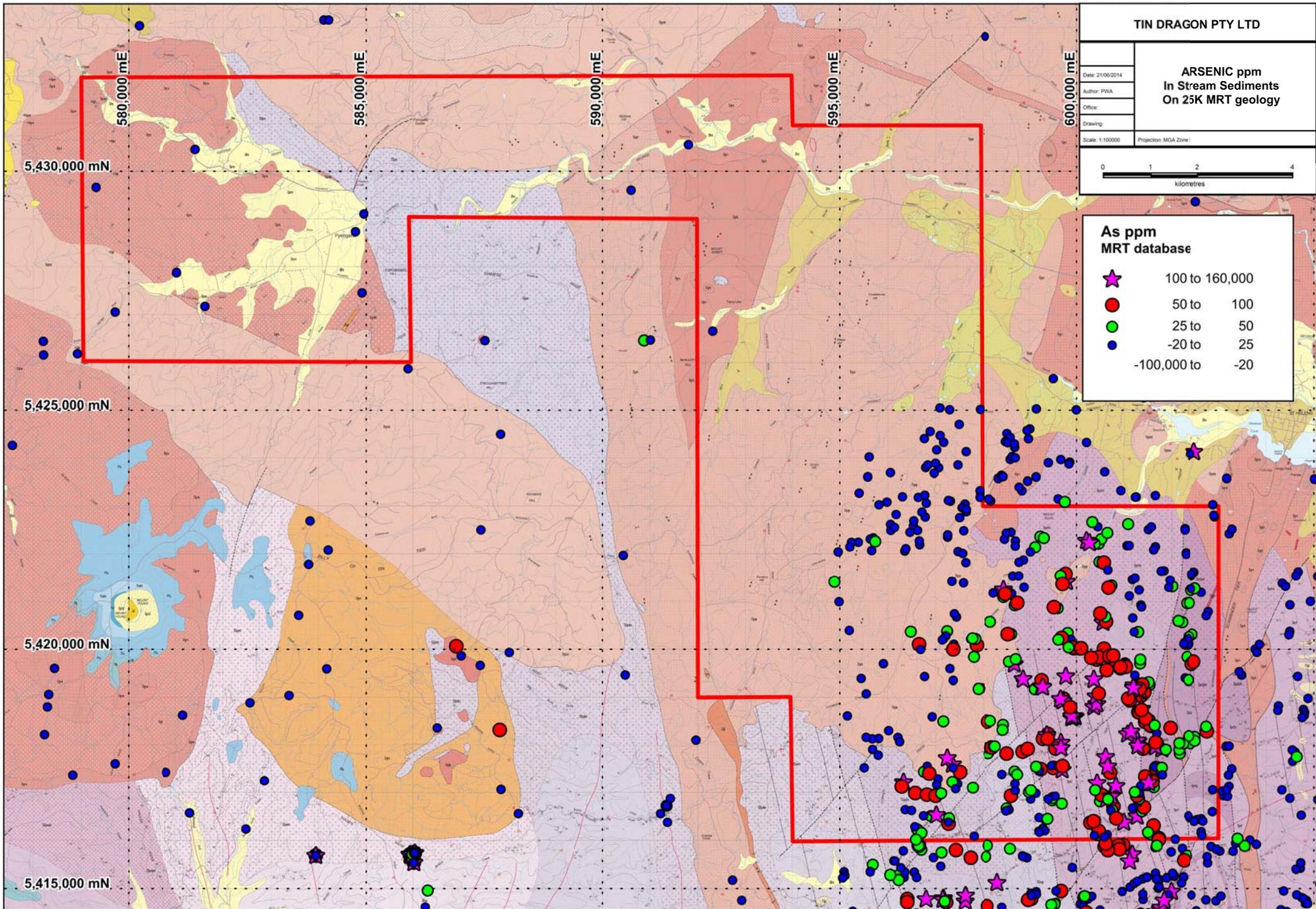


FIG 14

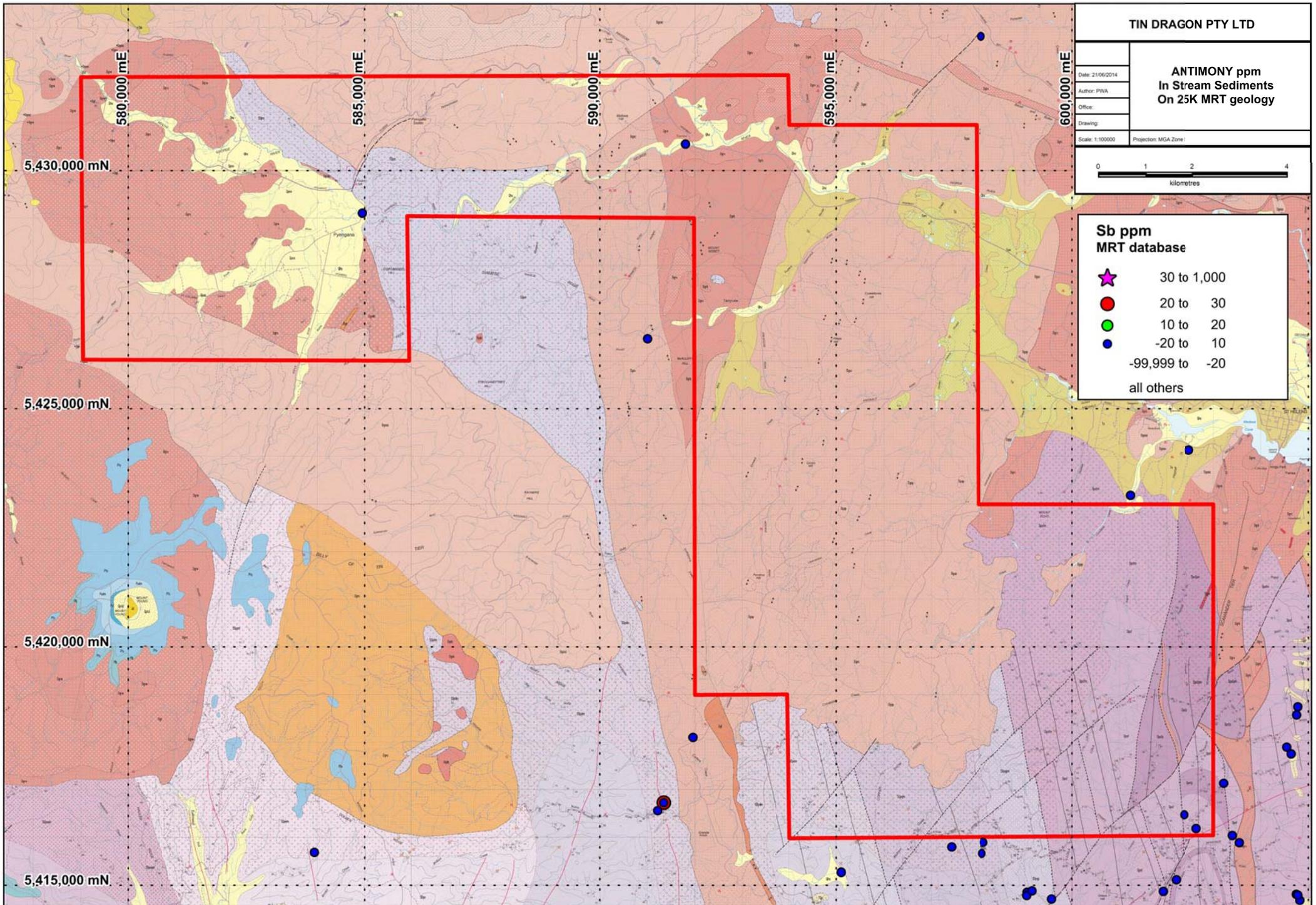


FIG 15

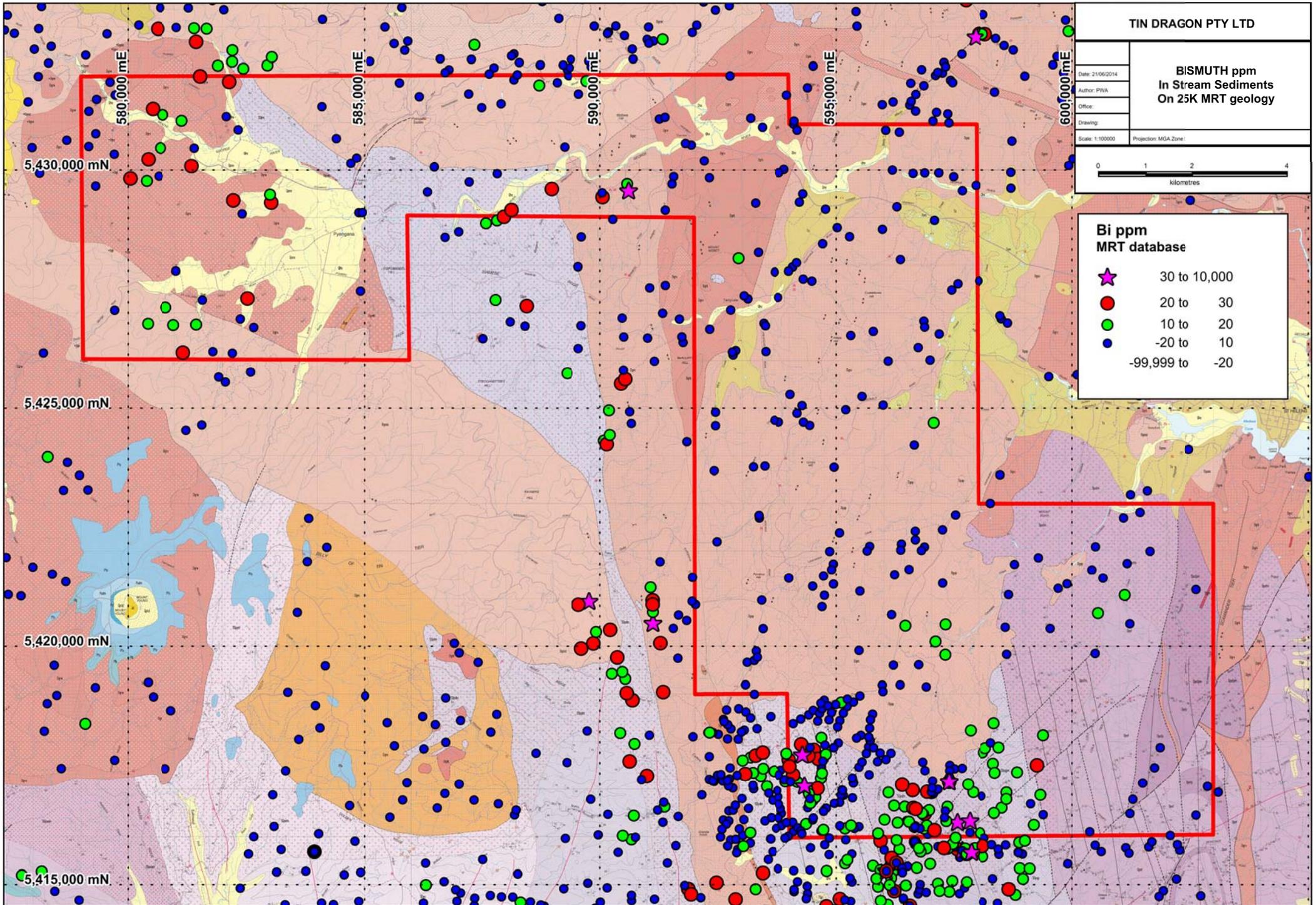


FIG 16

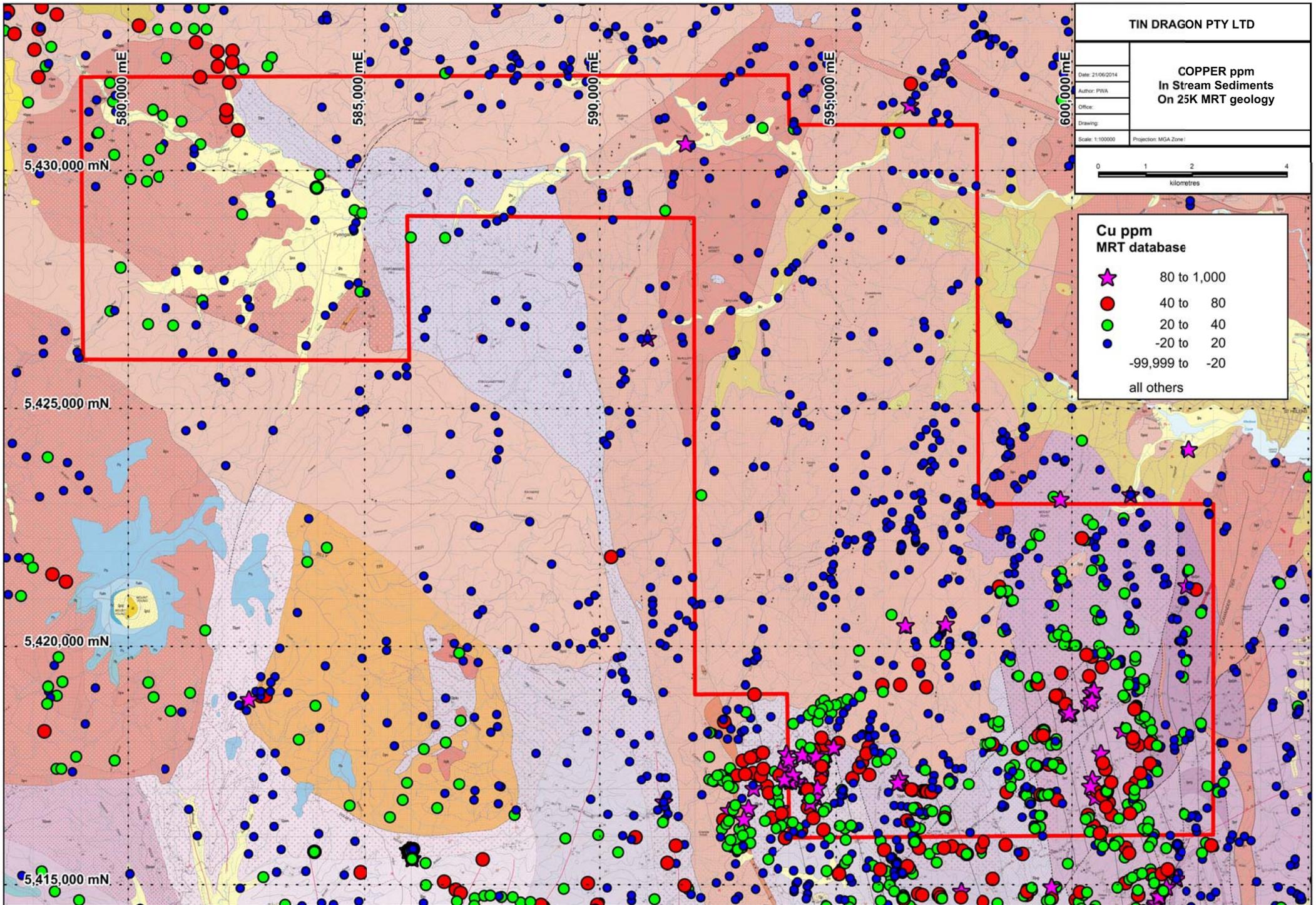


FIG 17

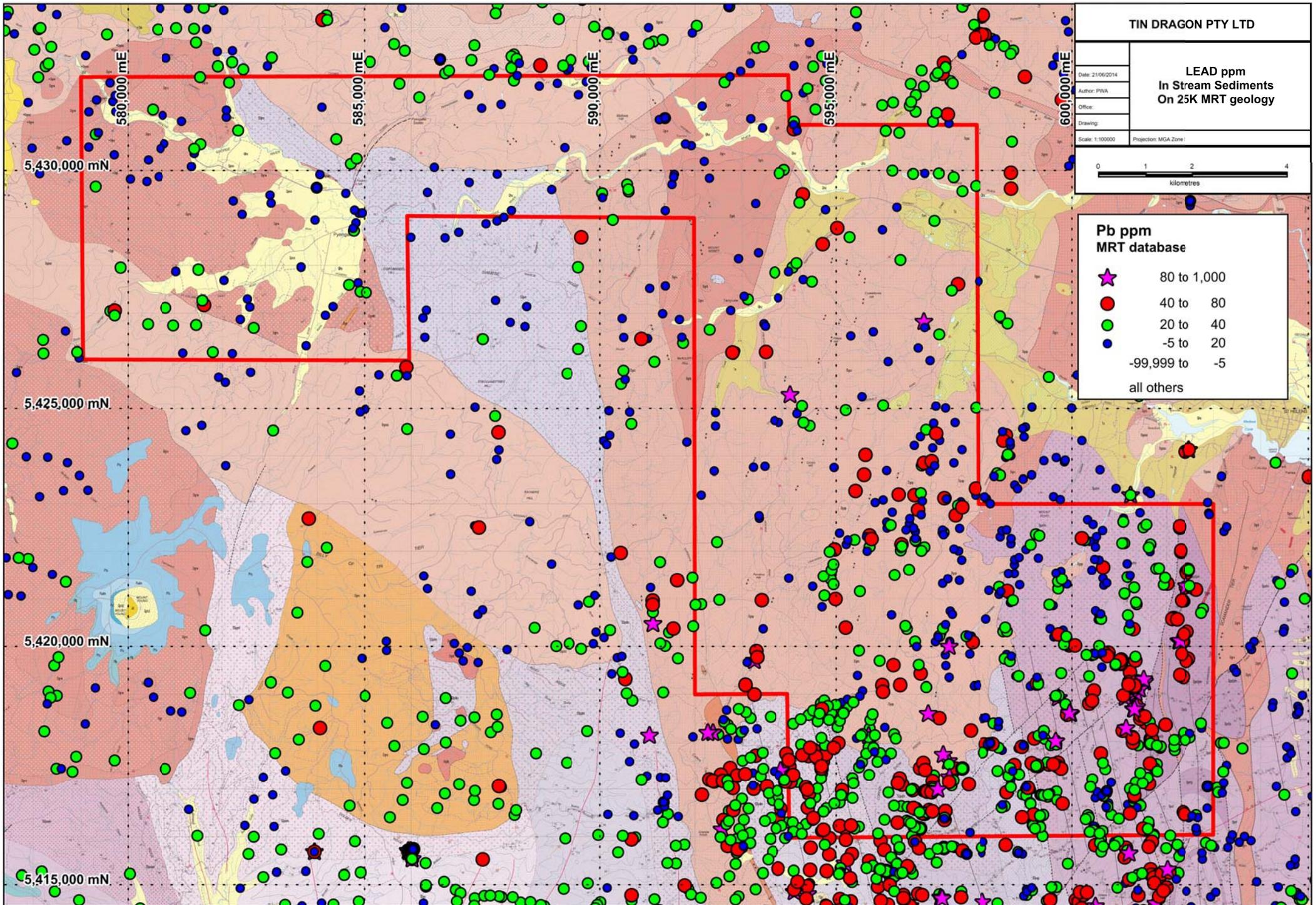


FIG 18

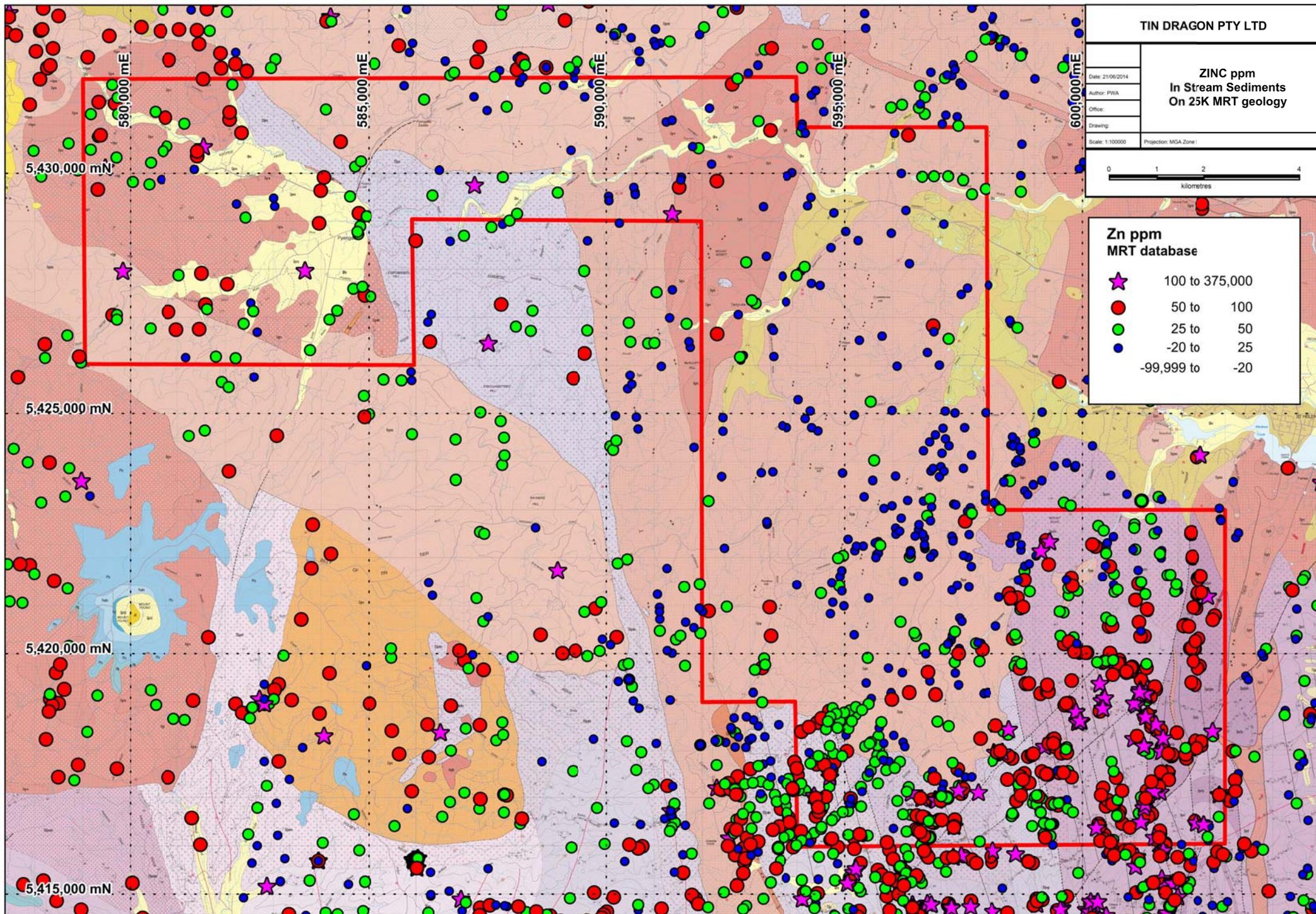


FIG 19

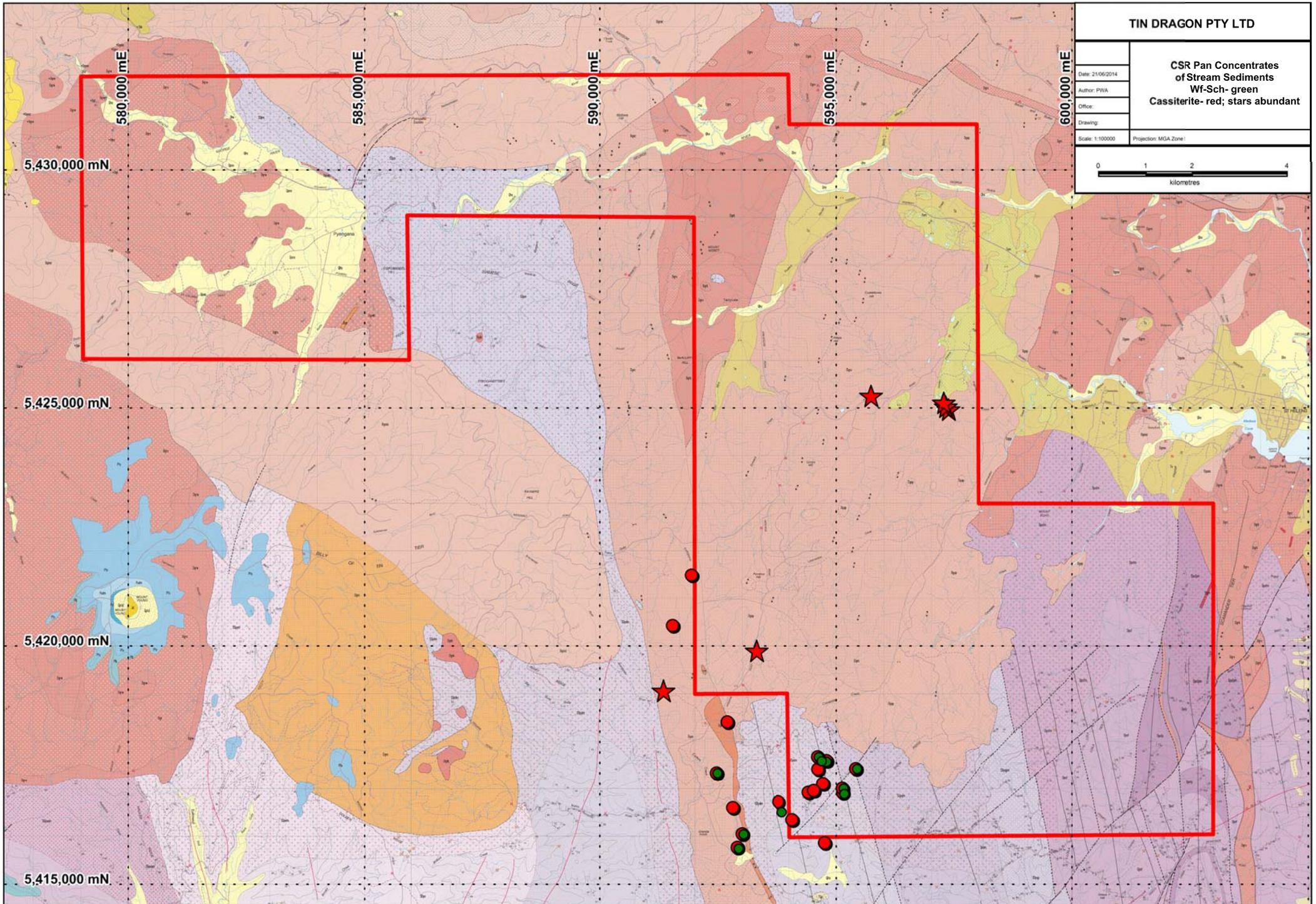


FIG 20

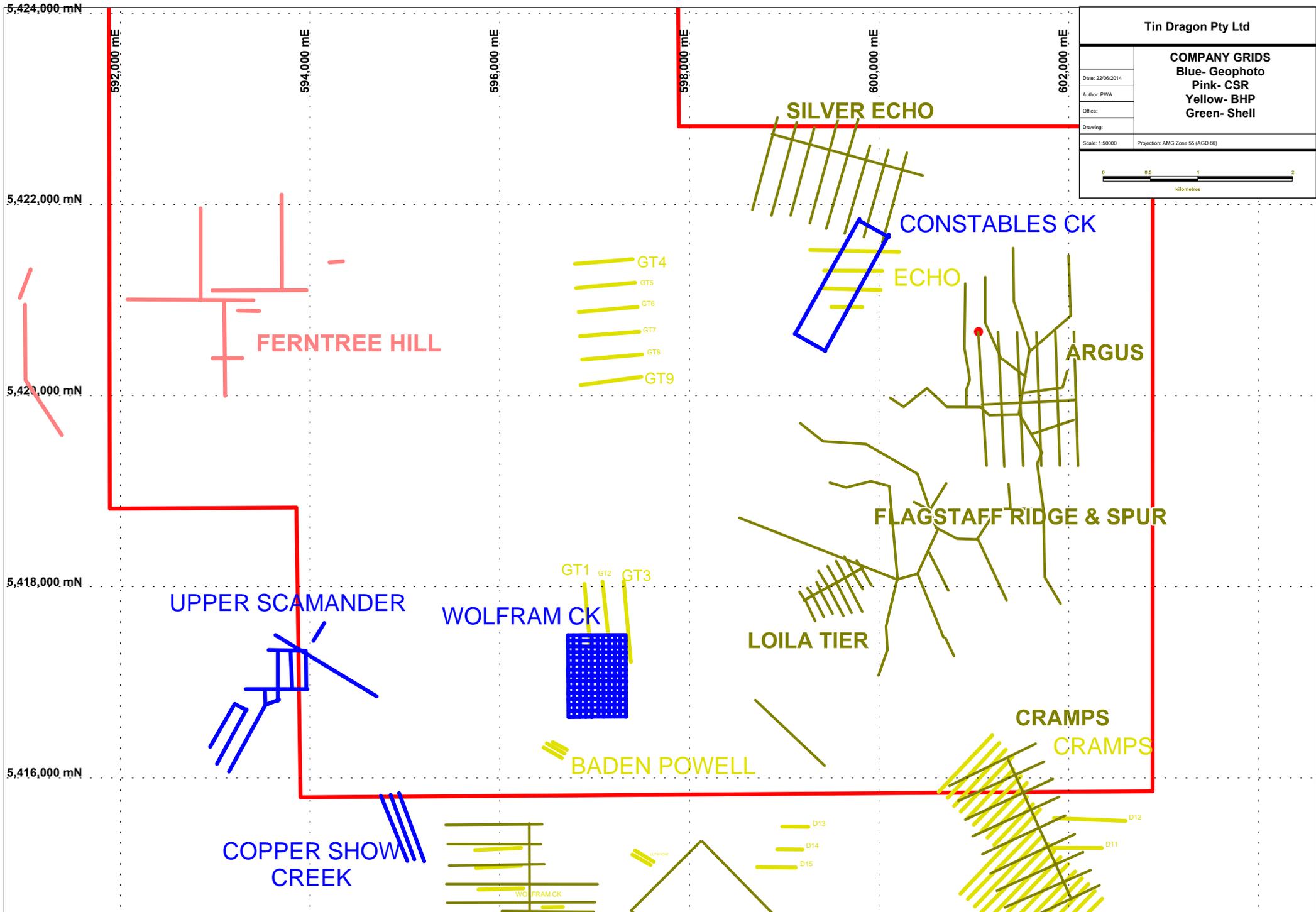


FIG 21

Date: 26/06/2014
Author: PWA
Office:
Drawing:
Scale: 1:100000
Projection: AMG Zone 55 (AGD 66)

DRILL HOLES (red diamonds)
ALL COMPANIES
(Corrected and added to MRT database)

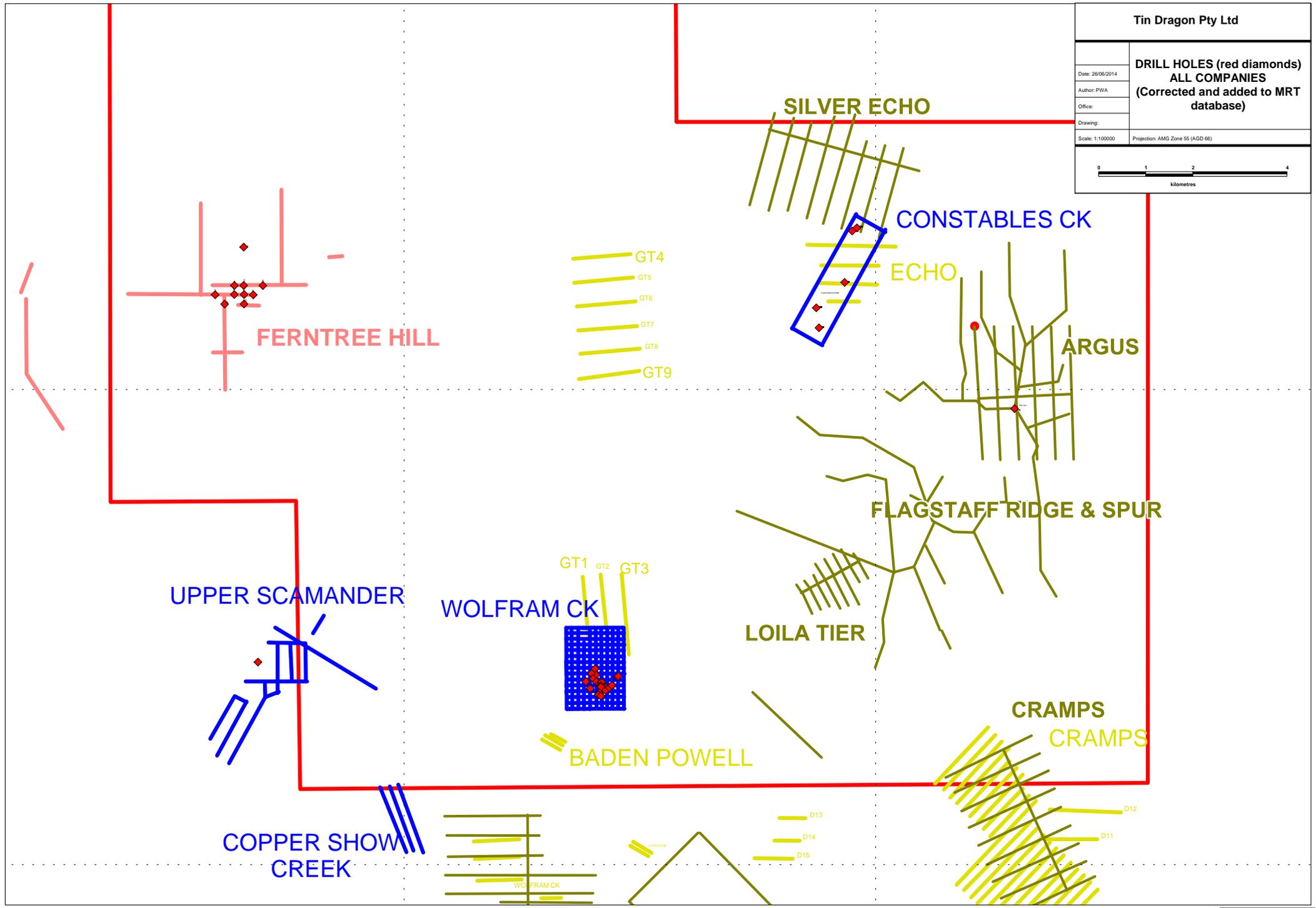


FIG 22

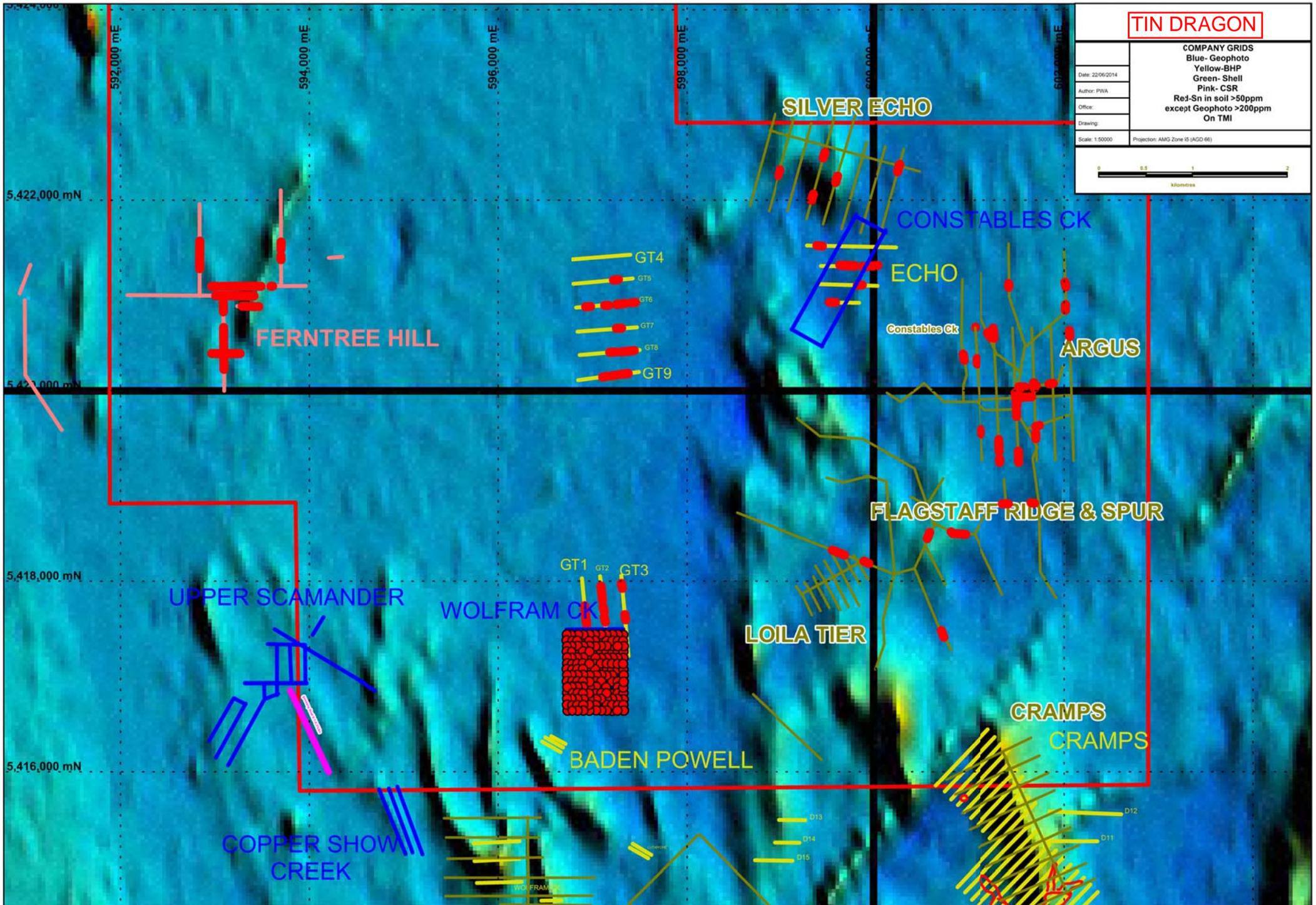


FIG 23

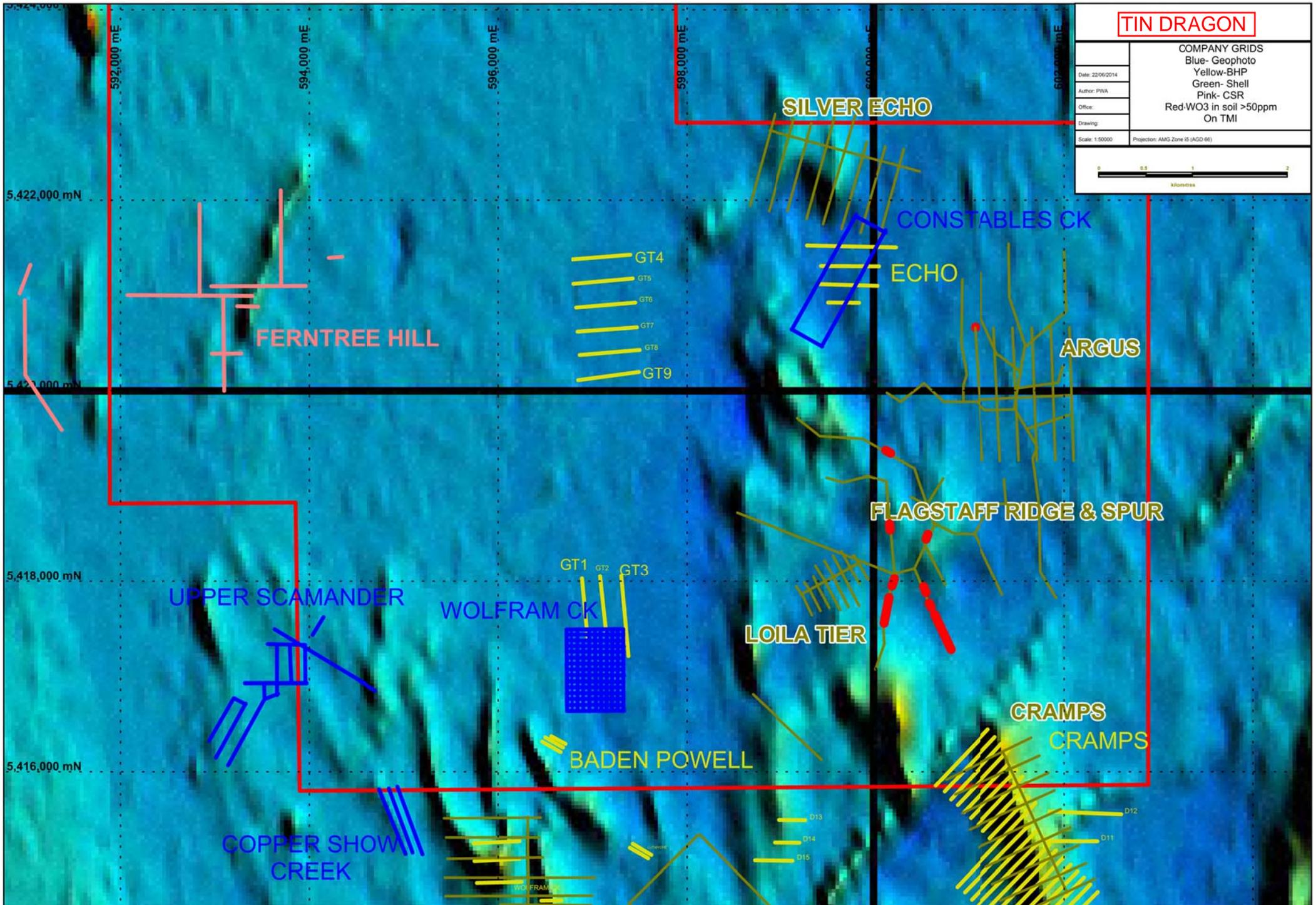


FIG 24

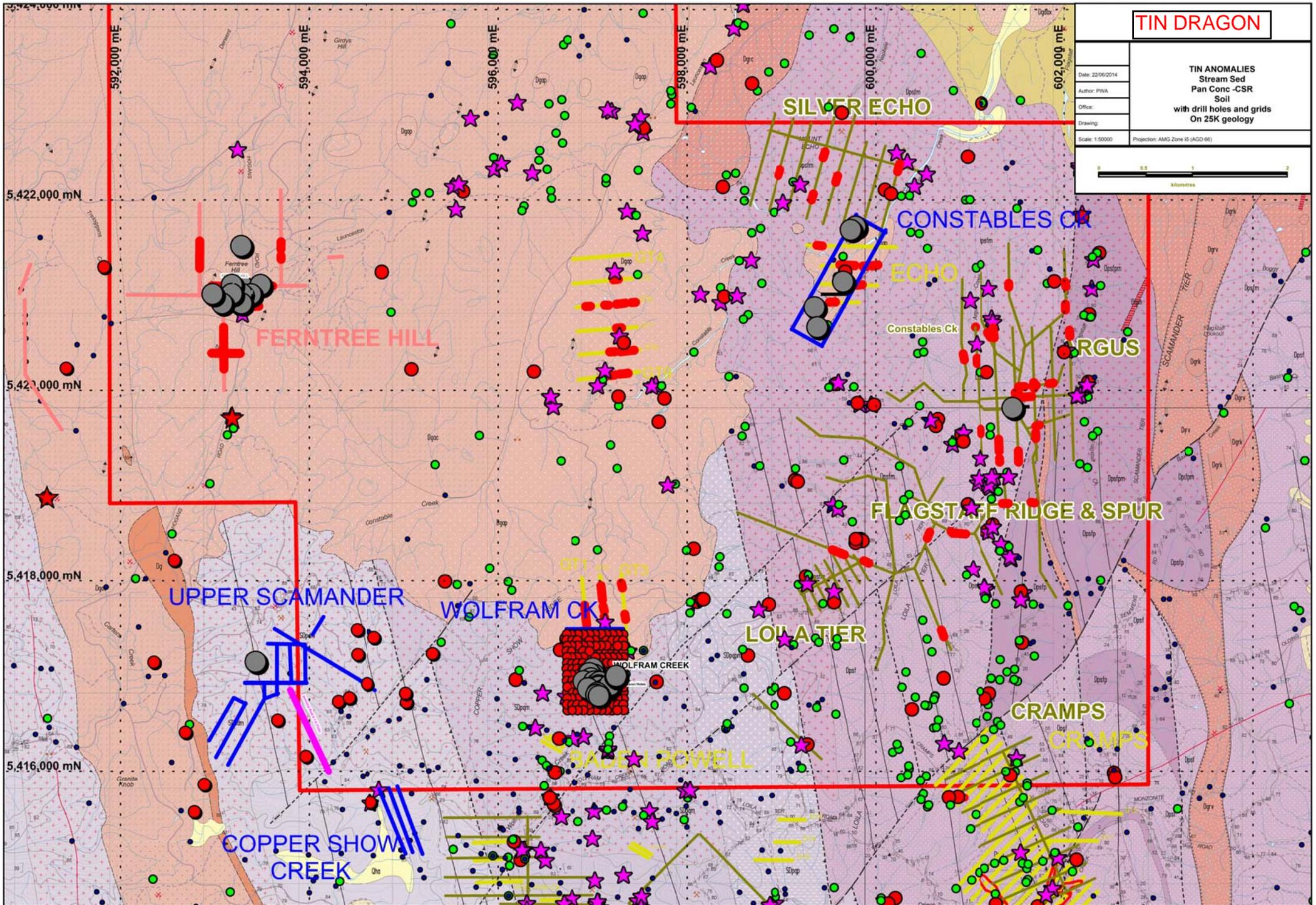


FIG 25

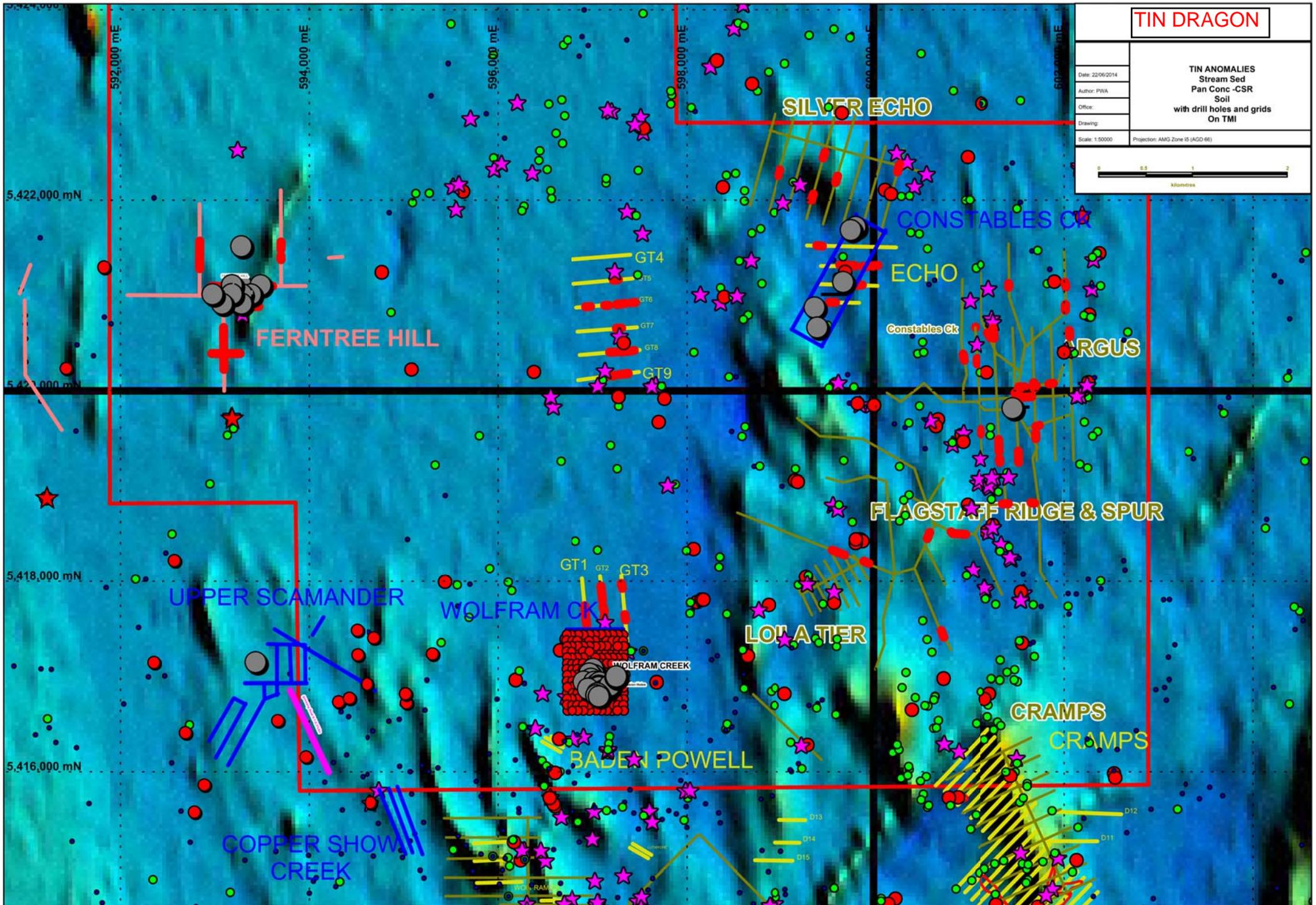


FIG 26

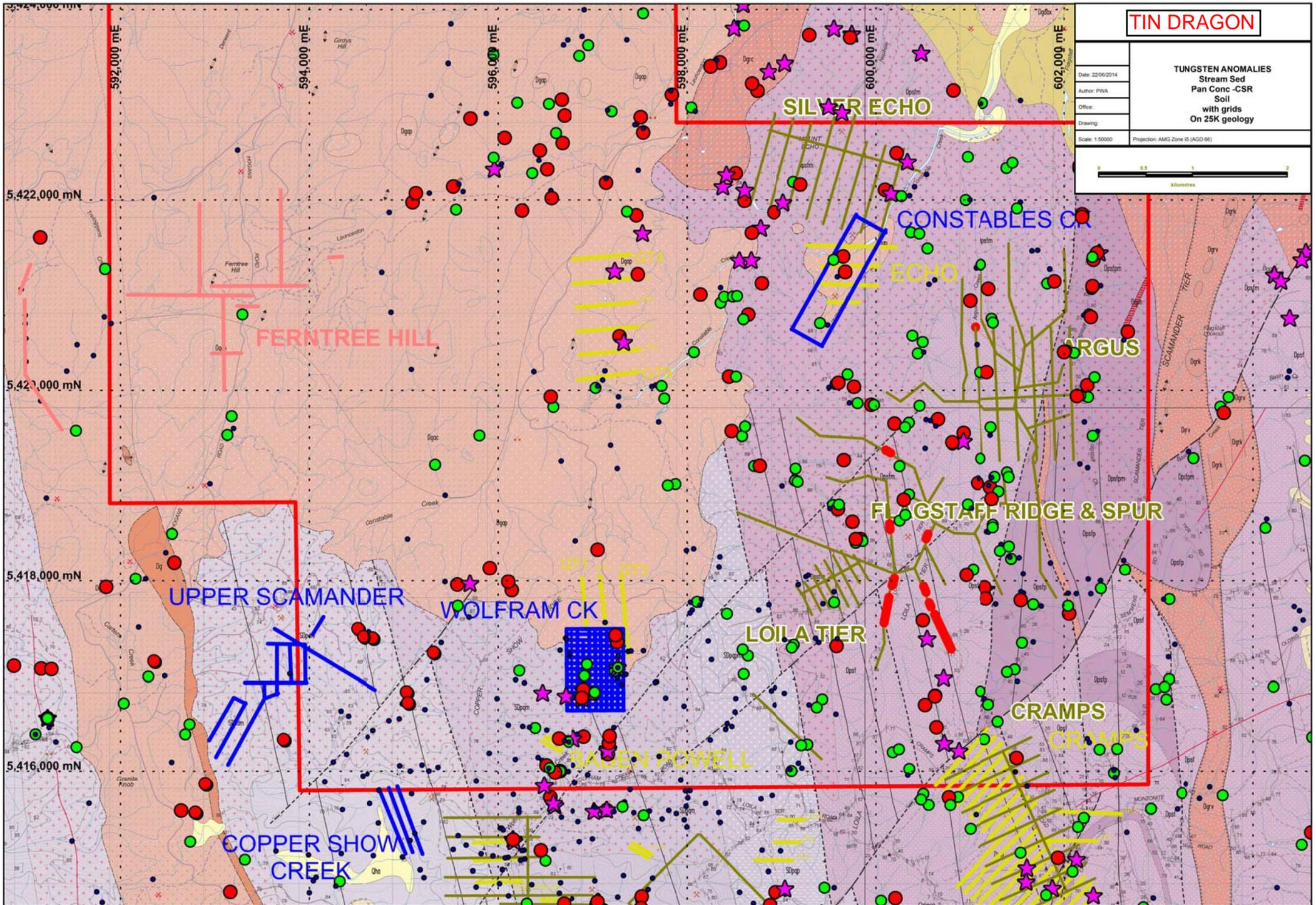
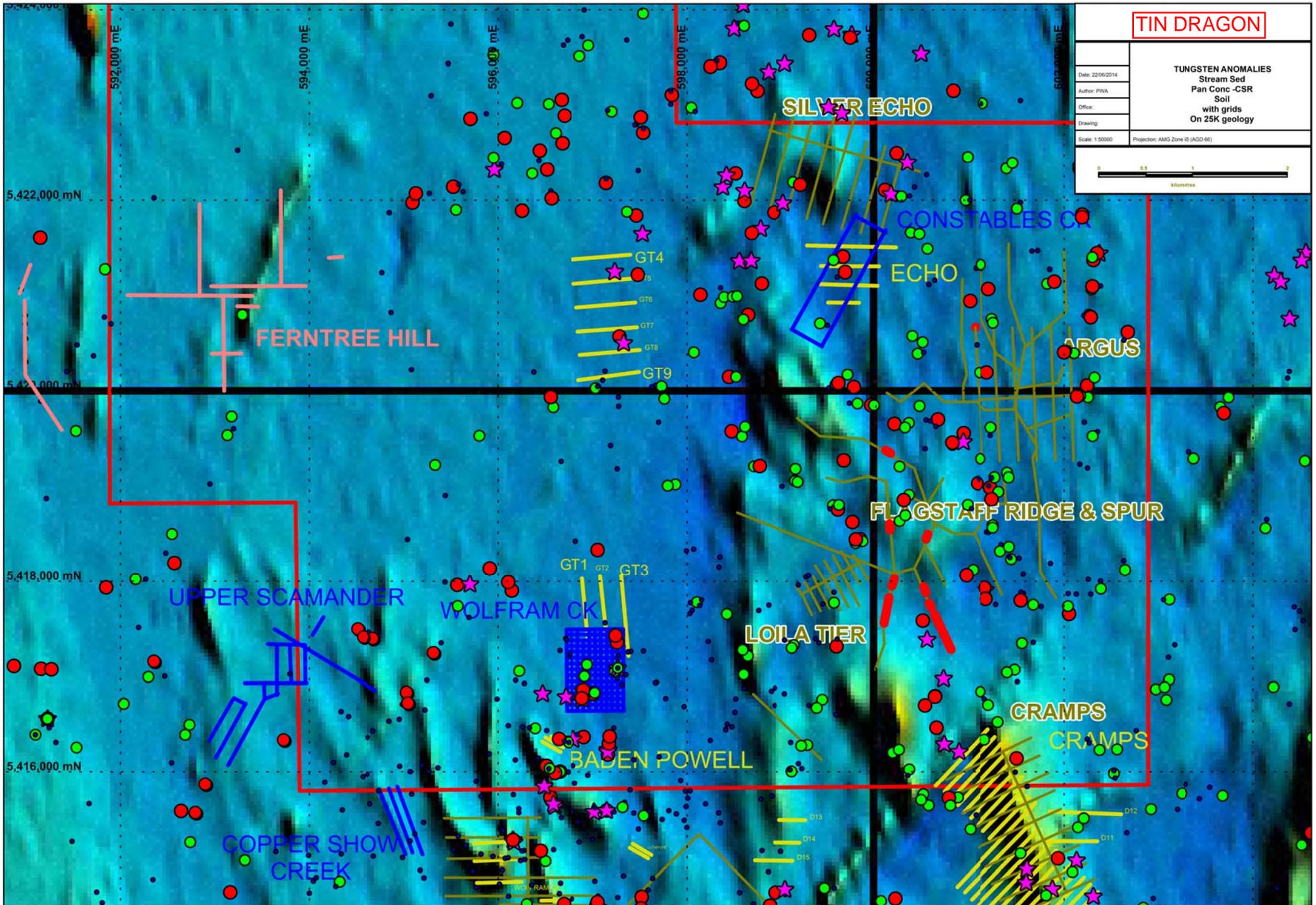


FIG 27



TIN DRAGON

Date: 22/06/2014	TUNGSTEN ANOMALIES Stream Sed Pan Conc -CSR Soil with grids On 25K geology
Author: PWA	
Office:	
Drawing:	
Scale: 1:50000	Projection: AMG Zone 15 (AGD 66)



FIG 28

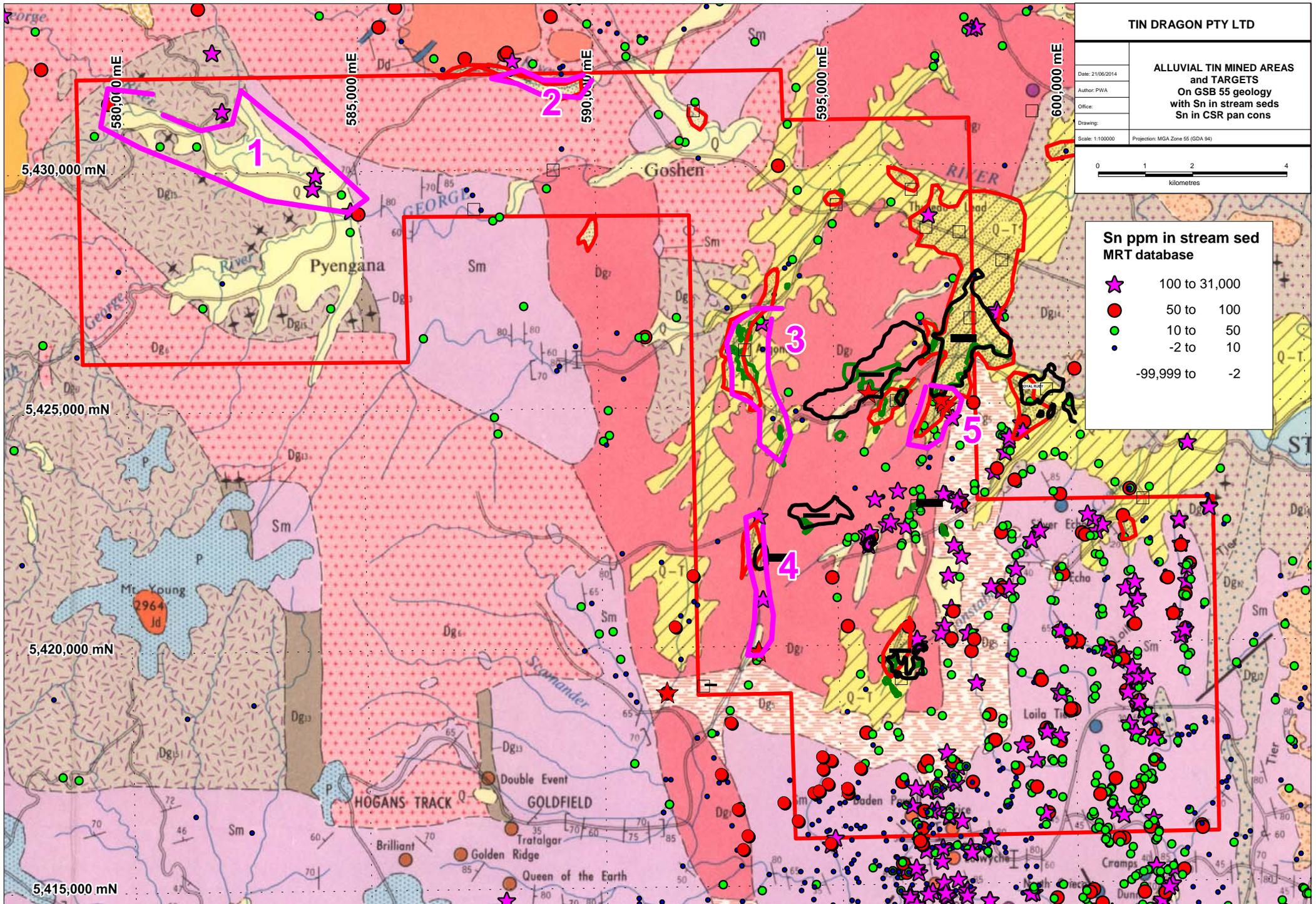


FIG 29

Date: 26/06/2014
Author: PWA
Office:
Drawing:

TARGETS

Scale: 1:100000 Projection: AMG Zone 55 (AGD 66)

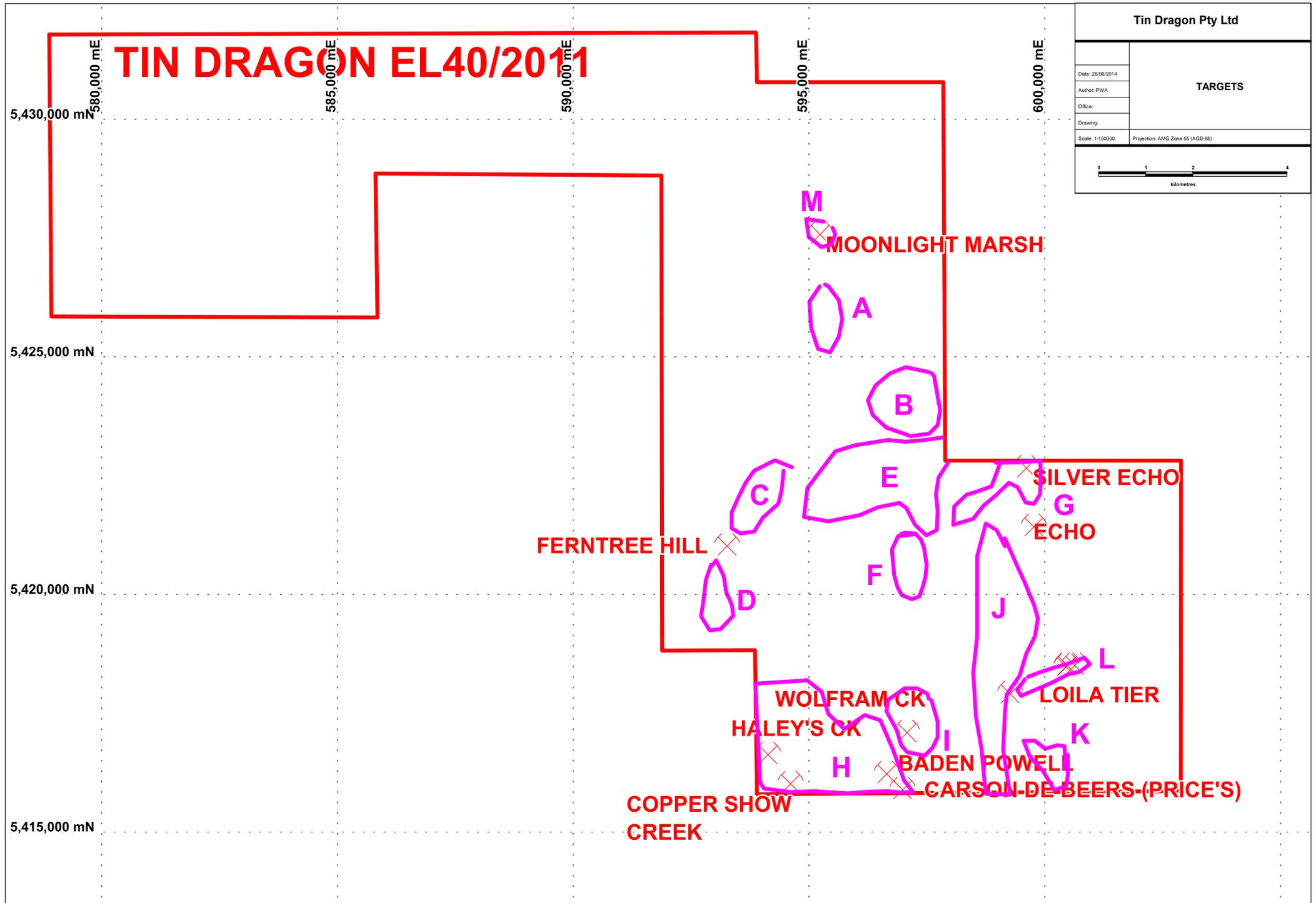


FIG 30