



**Exploration Permit for Minerals No 16768
Dillon Creek**

**Partial Relinquishment Report for the Period
Ending 28th November 2019**

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1. Summary

The exploration rationale behind the decision by CNW Pty Ltd (CNW) to apply for EPM 16768 over some 112 km² of countryside (35 sub-blocks) in the Mount Oweenee district on Barrington Pastoral Holding lay in the knowledge that the granitic phases of the Siluro-Devonian Lolworth Batholith underlying much of the terrain encompassed by the application hosted medium-high tenor auriferous, ferruginous quartz-(breccia) reefs akin to the deep mesothermal vein" type so characteristic of the Charters Towers Goldfield.

During the reporting period ending 28th November 2019, Broughton Minerals Pty Ltd further developed its targeting over the tenement. A review of the prospectivity of EPM 16768 was also carried out and as a result 5 sub blocks were relinquished.

2. Introduction

CNW Pty Ltd (CNW), a Brisbane based junior exploration company was granted Exploration Permit for Minerals (EPM) 16768 totaling 35 sub blocks on 29th November 2007 for a period of 3 years. This EPM was given the project name of Dillon Creek. The tenement was successfully renewed for a further 3 year period until November 2013.

The Dillon Creek district was selected by CNW for its perceived potential to contain relatively small, yet high grade, tabular to lenticular auriferous quartz reefs akin to the Charters Towers "deep mesothermal vein" style. The highest priority area of interest was considered to be that encompassed by the historic Grasstree "diggings", and their immediate surrounds, in the Dillon Creek sector. Apart from some interest in the 1980s and 1990s when a small "gouger" miner held title to part of the extensive reef system, these workings had effectively lain idle since their initial (late 1880s) initial discovery and subsequent short-lived exploitation.

Exploration activities carried out by CNW over the previous four years have involved compilation of open file data, prospecting, geochemical sampling, geological mapping and backhoe trenching.

This program has highlighted areas of anomalous geochemistry (up to 42 g/T gold) not only in the regions adjacent to the historical workings but also in what is considered to be a totally "greenfield" area.

3. Location & Access

The vast bulk of the EPM 16768 is situated within the Barrington Pastoral Holding in the Balfes Creek district. The station homestead, is located close to the EPM's westernmost limit, some 60 km west-northwest of the regional centre of Charters Towers.

Access from Charters Towers is via the sealed Flinders Highway past the small Balfes Creek community, and thence northwestwards along the formed, though unsealed, road leading to Barrington Homestead. Internal vehicular access is largely limited to fenceline tracks (many of which are poorly maintained) and tracks facilitating the servicing of windmills and bores. The sandy, granitic terrain lends itself to soakages, greatly restricting cross-country travel in wet weather.

The topography, with the "highpoint" of Mount Oweenee (elevation 435m) a none too-prominent feature, ranges from relatively open grasslands flanking the watercourses, to rather scrubby gently rolling terrain, while the extensively lateritised "breakaway" country traversed by the now largely overgrown station powerline track in the centre of the project area is quite dissected.

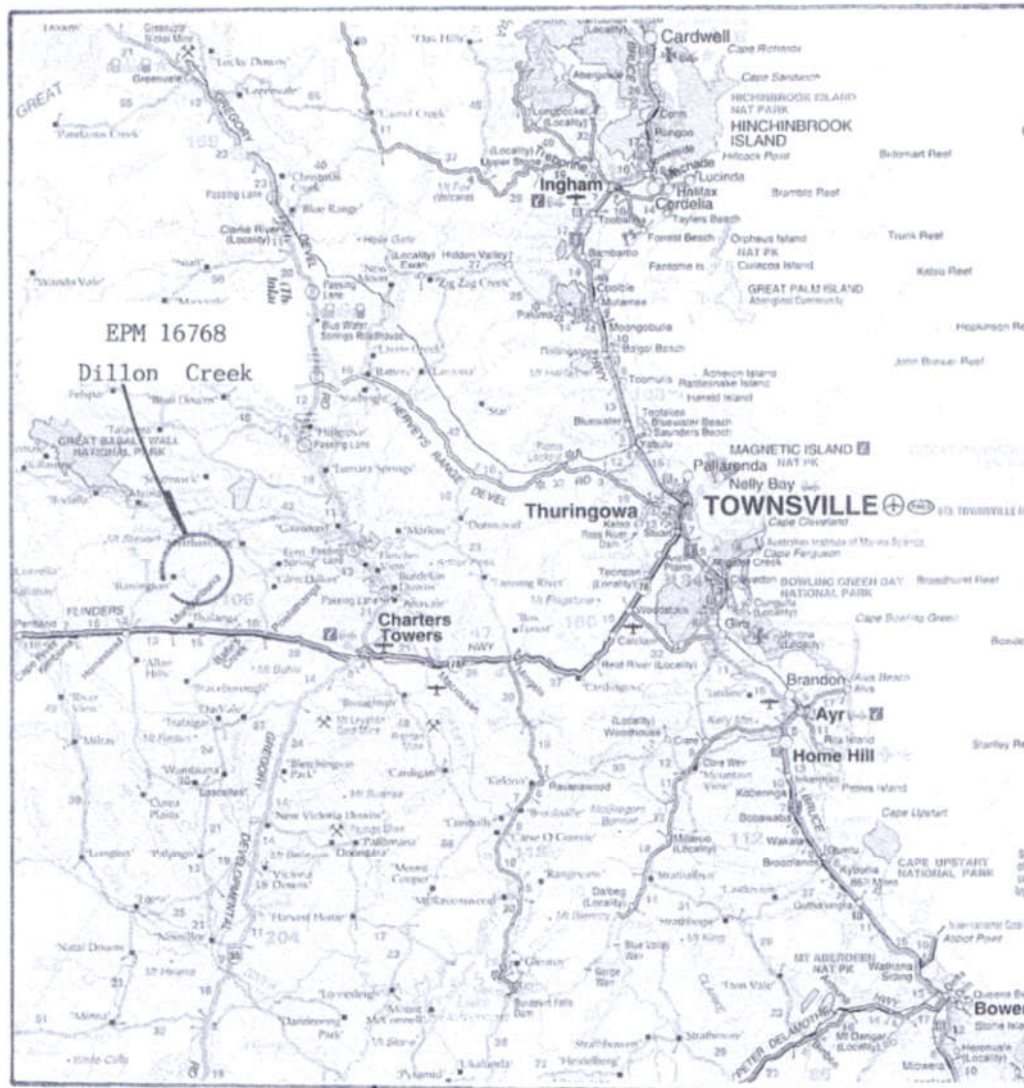


Figure 1 – Location Map EPM 16768 Dillon Creek

4. Tenement

An application by CNW (100% equity) for an Exploration Permit (Minerals) comprising 35 sub-blocks (Figure 2) and encompassing some 112 km² of country drained by Balfes Creek and Dillon Creek was duly granted on 29th November 2007 for an initial period of three(3) years. The grant was contingent upon a financial commitment of \$80,000.00 towards *bona fide* exploration of the tenement.

The tenement lies wholly on the Homestead 1:100 000 map sheet, as identified below on the Clermont Block Identification Map of the Charters Towers District.

Block	Sub-blocks
93	t u y z
94	q r s v w x
165	a b c d e f g h j k p u z
166	a b c f g h l m n q v
238	a

See Figure 2 below.

A titles search at the DME Tenures Branch confirmed that no other mining title was current within the E.P.M. boundaries. In fact, evidence of only one(1) prior Mining Lease, held conjointly until 03.12.90 as M.L. 1391 (Grasstree No. 1) by Joseph B. Mather and Phyllis M. Prince, was unearthed.

Current granted EPMs 16025 (Regalpoint Exploration Pty Limited) and 16926 (Queensland Gold Investments Limited), along with a block subject to competing applications, abut EPM 16768 in the south, with "open" ground to the north.

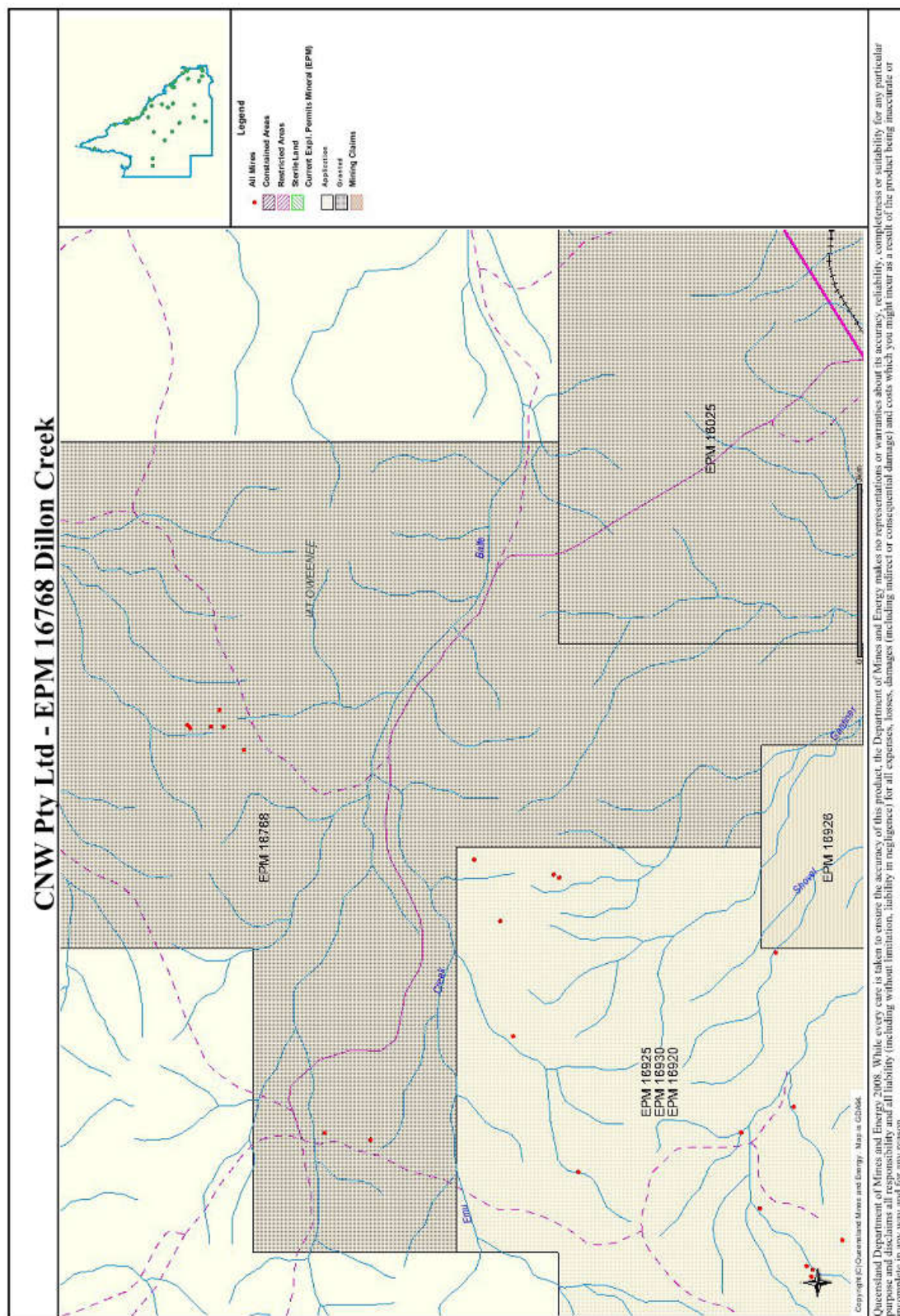


Figure 2 – Tenement Map EPM 16768 Dillon Creek

5. Regional Geology

Recent DME mapping of the Homestead 1:100,000 Sheet area reveals that much of the Dillon Creek EPM is underlain by the Redlands Granite and/or undivided units of the Lolworth batholith. This fieldwork has shown (L.J. Hutton et al, 1996) that "most of the Batholith is made up of muscovite-biotite granite with rare garnet. Layered leucogranite-aplite-pegmatite dykes intrude the two-mica granite, forming thick (>200m thick) sheets, particularly in the north-east of the Batholith. The leucogranite dykes and sheets are structurally controlled, suggesting emplacement after cooling of the two-mica granites." Mineralogically, the granites are felsic ($\pm 70\%$ SiO₂) phases, seemingly with mixed I-type and S-type characteristics.

The Redlands Granite, a member of the Amarra magmatic (granitoid) suite, underlies much of the terrain in the EPM's northern sector, where it crops-out over an area of about 8km² around Mount Oweenee, some 12 kilometres eastwards from Barrington Homestead and north of Balfe Creek. The type area around the flanks of Mount Oweenee reveals a pink to cream coloured muscovite leucogranite which, petrographically, is essentially comprised of quartz, large poikilitic K feldspar grains, lath-shaped plagioclase feldspar, muscovite and minor garnet. It has been interpreted to represent a fractionated end-member of the Amarra Suite.

As the Redlands Granite is surrounded here by Tertiary-Quaternary sediments, largely represented by colluvium (see Figure 3), poorly-consolidated pelites (Campaspe Fm) and widespread, though discontinuous, sheets of nodular ferricrete, its relationship(s) with nearby Lolworth Batholith granitoids cannot be determined. No precise age for this non-magnetic granitoid phase has yet been determined. However, on the basis of its lithological similarity to other Lolworth Batholith phases, a Late Silurian to Early Devonian age has been assigned. Nevertheless, this age is in keeping with the earlier findings of A.W. Webb (1971) who published K-Ar ages of $398-409 \pm 12$ Ma for granitic phase of the Lolworth Igneous Complex. The northern portion of the Batholith is unfoliated, has discordant contacts and does not appear to have undergone deformation; a Devonian age was thus assigned by A.G.L. Paine et al. (1971) on the basis of available structural data.

Exposures of the Grasstree Leucogranite, Hodgon Granodiorite, and Reedybed Granite impinge upon the Dillon Creek E.P.M. 16768 in the west, north and south respectively (See Fig 3).

The injection of relatively narrow (25-50cm average, though up to ± 2 m on rare occasions) tabular/lenticular auriferous quartz- breccia reefs akin to the Charters Towers "deep mesothermal vein" type into the EPM's dominant granitoid phase (Redbank Granite) is quite widespread as the Sample Location Map (Figure 4) illustrates.

A system of fine fractures (often highlighted by red/brown iron oxide \pm rare black manganese oxide infill) aligned parallel to the vein walls is commonly developed, producing a lineated/sheeted appearance. Locally, individual lines-of-reef can be quite arcuate in strike. Nevertheless, either a north-northeast or a north-northwest trend is generally favoured, with a more meridional local trend sometimes evident in the more arcuate Grasstree North reefs. Almost invariably, the auriferous reefs are sub-vertically disposed.

The structurally-controlled lode channels are well-defined features. Within the joint/fault shear walls, many of the reefs are seen to be composite SiO_2 developments, wherein often centrally-situated massive vein quartz is flanked by sub-parallel quartz veinlets. The narrow "horses" of often intensely-altered, sericitised-chloritised granitic inter-veinlet "lode formation" generally do not appear to be significantly mineralised. In some instances, the massive central SiO_2 reef is absent; only an irregular quartz-veinlet stockworks is present within the lode channel.

Many of the lines-of-reef scattered throughout the EPM's outlying sectors do not seem to persist over any great distance. The meridional shear-controlled body, some 40cm wide and composed of cupriferous, ferruginous quartz-breccia veinstone, which is centred at co-ordinates 369559E 7771095N (Sample 4790) adjacent to a paddock fenceline is an exception, as is the poorly-exposed composite ferruginous SiO_2 reef which is perhaps ± 2.5 m wide and trends northwesterly across the flanks (refer to Sample 4729 at coordinates 372399E 7768851N) of Mount Oweenee.

On the other hand, the major SiO_2 components once exploited within the historic Grasstree Mine area suggest some promise of longevity (>200m strike length) although current investigations by CNW indicate that reef widths are generally narrow. The sub-parallel Grasstree lines-of-reef are distributed in an *en echelon* pattern and, given the general broad inter-reef separation and limited wallrock alteration \pm mineralisation, any potential for bulk mining is effectively downgraded markedly. The wider (± 1 m) and richer (± 10 ppm Au) reefs would need to be assessed on a stand-alone underground mining basis.

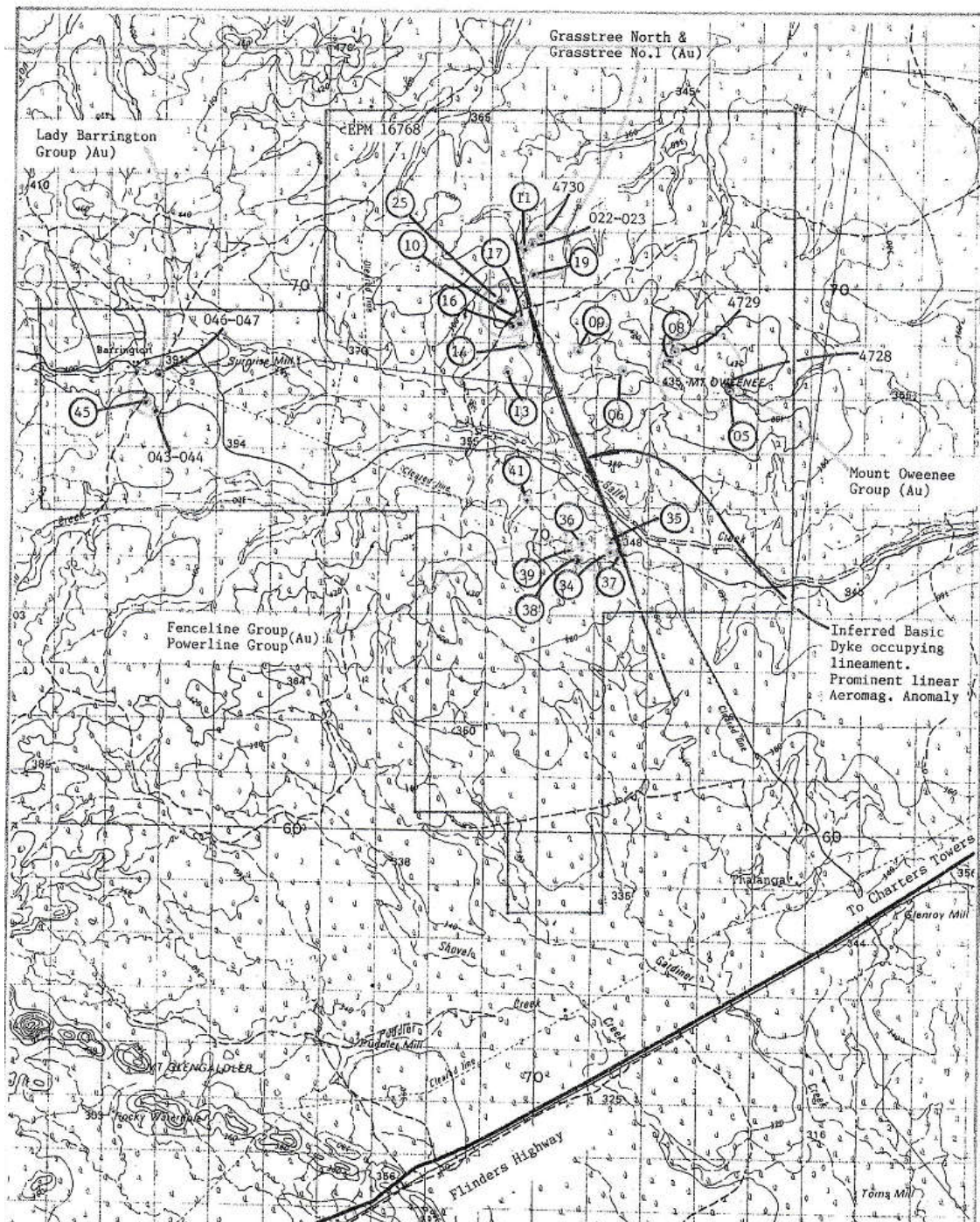


Figure 4 – Sample Location Plan of Dillon Creek Tenement

The Grasstree "diggings" themselves are situated near the crest of a broad, low ridge and are scattered over an area ~ 1000m long x 400m wide (See Figure 5). Bedrock exposures are minimal and are of weathered layered aplitic to pegmatitic granite marginal phase (Redbank Granite) of the Lolworth Batholith and is mantled by a relatively thin (± 1 m) layer of sandy residual/eluvial detritus. Weathering of the quartz-K feldspar -muscovite granite country rock persists to only very shallow depths.

Over much of the previously-mined area, an indurated layer about 1m thick of "cement wash" (Tertiary-Quaternary nodular ferricrete unit) is interposed between the unconsolidated sandy loam and the auriferous lode channels. This layer comprises closely-packed, blocky to sub-angular pebble/cobble size clasts of vein quartz set in a ferro-siliceous cement. A high water table is evident, with standing water level often encountered only 1 to 2 m below ground level. However, as noted in some deep shafts sunk in "tight" granitic country, the standing water level can lie at greater depth.

The auriferous quartz breccia veins within the Grasstree reef system, where gold values are erratically distributed are considered by some workers (C.M. Sennitt & J.S. Hartley, 1994) to reflect the "deep mesothermal vein" style of the Charters Towers reefs. A Siluro-Devonian age of 397- 416 Ma has been determined by G.W. Morrison (1988) from "sericite" (hydrothermal muscovite) within the alteration halo of Charters Towers reefs.

A general north-northeast trend is favoured by the tabular, ferruginous quartz breccia reefs within the Grasstree minesite, although local meridional (even north-northwest) trends are evident. The more-or-less parallel, subvertically disposed Grasstree reefs are distributed in an *en echelon* pattern - See Figure 5

Whilst intense sericitic alteration of the granitic wallrocks accompanied emplacement of the SiO₂ veins, the alteration haloes are generally quite narrow. Earlier mapping, prior to backfilling of the Grasstree No. 1 sector workings, by N.M. Tate (1988) indicated that the sericitic alteration extended to three or four times the width of the vein itself, although it contains "very low gold grades unless there is some subsidiary quartz veining around the main lode." The vein system is structurally controlled, having been emplaced along fault/shear zones, and N.M. Tate (1988) further believed that "the orientation of subsidiary fractures and tension gash veins associated with the main structures consistently indicated a sinistral sense of shear. This is important because it indicates that shoots within the veins should occur at flexures which are concave to the southeast."

A later petrographic study by Geochempet Services (A.S. Joyce, 1996), which was conducted on a typical deformed Grasstree-type vein quartz (90% SiO₂) specimen, revealed "apparently disturbed and locally disrupted banding, now composed of quite a fine, "cherty" style of quartz (equant, anhedral grains around 0.01 mm size). As much or more of the specimen consists of slightly coarser,

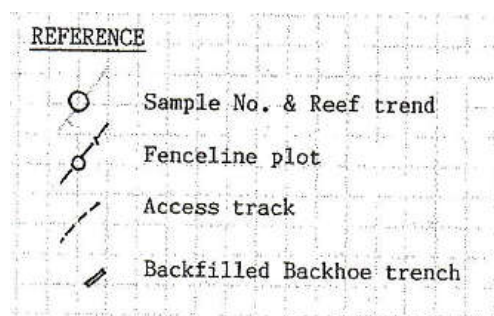
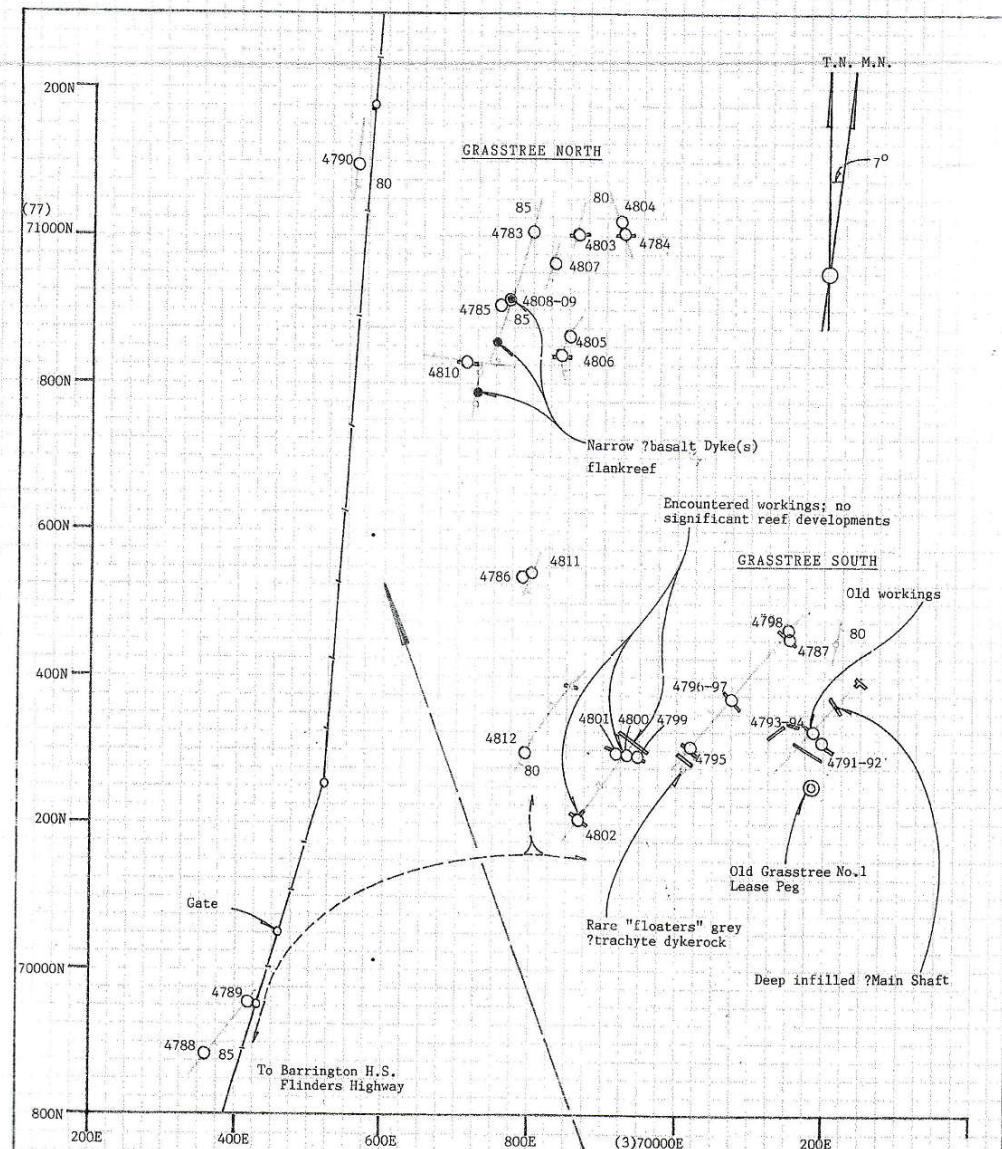


Figure 5 – Grasstree Minesite showing distribution of ferruginous quartz-breccia reefs and sample location.

anhedral. to crudely "toothy" quartz (around 0.05 to 0.2 mm size and riddled with tiny fluid inclusions) arranged in patterns with associated pores (0.05 to at least 2 mm long) which appear crudely pseudomorphous after bladed inferred carbonate crystals about 1 to 4 mm long. Very minor components are sericite (interstitial to quartz) and very fine inferred pyrite (cubes) and arsenopyrite (diamond-shaped); the inferred sulphides are 0.01 to 0.02 mm in size and now oxidized."

"Many of the small pores are now lined or filled by secondary limonite/goethite and/or brownish black manganese oxide. In part of the specimen, elongate pores (probably cleavage controlled in original carbonate crystals) are variously lined or filled by colloform, quite fine carbonate of secondary appearance."

In contrast to the view expressed by other workers, it was the confident interpretation of A S Joyce (1996) that specimen described, represented epithermal vein material, in which bladed carbonate crystals had been replaced by vuggy aggregates of fine quartz. Finer "cherty" quartz in disturbed and disrupted bands was thought to represent original colloform silica and, most likely, silicification took place about 50-200 m beneath the land surface.

6. Previous Exploration

Previous exploration activities within EPM 16768 have largely been of a reconnaissance nature and somewhat cursory. In most instances, the Mount Oweenee district either lay close to the extremities of former ATP/EPM's or constituted an "outlying" sub-group which formed part of a large composite grant.

A review of literature held on open file reveals the following relevant activities:

ATP 5025 (1987-89) **Dalrymple Resources N.L.**

CR # 21293 – Regional reconnaissance, steam sediment geochemistry & airborne magnetic/ radiometric survey.

ATP 5322 (1988) **Carbine Gold N.L.**

CR#19140 - Grasstree mapping & sampling. Rock chip samples taken averaged 21 g/t Au with a maximum recorded assay of 154 g/t Au."

EPM 9693 (1993-99) **Normandy Exploration Ltd**

CR# 31477 – Regional geological reconnaissance & aeromagnetic survey

EPM 10625 (1995-98) **Queensland Gold Pty Ltd**

CR# 28744 & 30787- Limited to onsite inspections of Grasstree & Barrington Mines.

Site operations conducted by the Mather-Prince syndicate seem to have been largely confined to surface prospecting & costeaning at/near the Grasstree No. 1 Shaft.

7. Current Exploration

During the reporting period ending 28th November 2019, Broughton Minerals Pty Ltd further developed its targeting over the tenement. This included building on the satellite imagery study carried out in the previous reporting period which highlighted numerous areas previously largely concealed which appeared to be the surface expression of historical mining.

Also following a review of the prospectivity of EPM 16768 it was decided to focus exploration on these highlighted gold occurrences. As a consequence, a total of 5 sub blocks were relinquished on 28th November 2019.

8. Relinquishment Details

Following a review of the prospectivity of EPM 16768 it was decided to focus exploration on highlighted gold occurrences. As a consequence, a total of 5 sub blocks were relinquished on 28th November 2019. These are listed below:

BIM	Block	Sub-blocks
CLER 94		w
CLER 165		p
CLER 166		b,c,l

9. Appendix 1 - References

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