

EL 3/2015 Lefroy

Annual Report on Exploration

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Executive Summary

EL 3/2015 "Lefroy" covers over 2/3 of the Lefroy Goldfield in Tasmania's northeastern goldfields.

Mines ceased operation at generally shallow depths citing drop in grades as a contributing factor, however, this fall is almost certainly an apparent drop with gold becoming refractory.

Successful historical intersections of reefs beneath old workings e.g. 0.4m @ 6.5g/t Au beneath the Volunteer Mine and 1m @ 4.5g/t Au beneath the Land of Cakes workings argue show that ore does continue at depth.

Other than these holes there has been almost no drilling of these high grade reefs down plunge of the high grade shoots.

A historical review has identified the Volunteer and New Native Youth as those mines with best depth potential, with the Morning Star and Land of Cakes mines next in line.

Compiled soil geochemistry has identified a number of target areas worth following-up with more detailed soil sampling and excavator trenching.

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1.0 Introduction

1.1 Location and access

EL 3/2015 “Lefroy” lies 10 kilometres east of the Tamar River. The 27 square kilometre licence covers the southern 2/3 of the Lefroy Goldfield in Tasmania’s northeast goldfields, lying directly along strike across the Tamar River from the 2 million ounce Tasmania Reef at Beaconsfield.

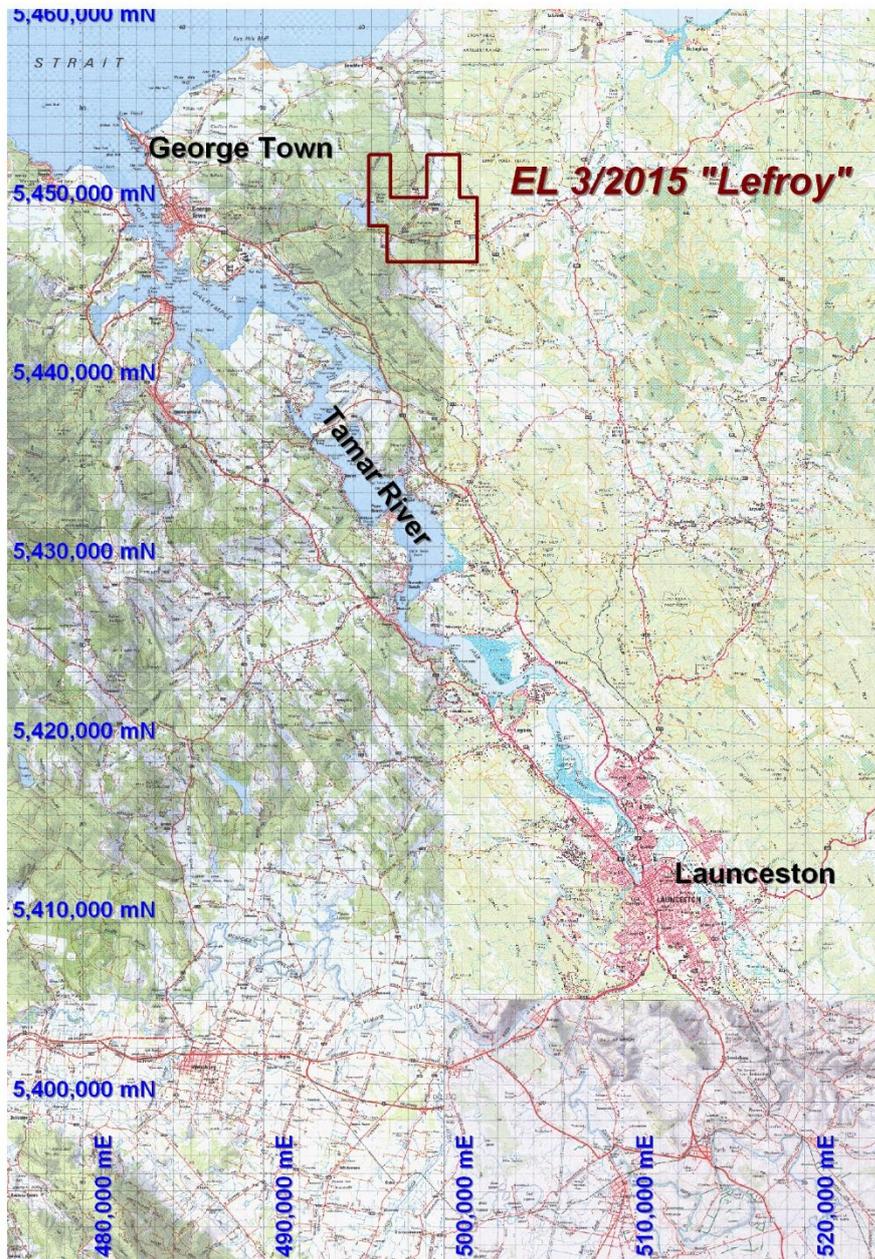


Figure 1.1: EL 3/205 “Lefroy” location in Tasmania’s central north.

The licence is accessed by the bitumen Bridport Road with internal access via the Beechford Road, town streets and other bush tracks.

1.2 Land status and usage

Apart from the town itself, a portion of the northeastern part of the licence is pastured farmland whilst most of the licence area is state forest and private bushland covered in dry open sclerophyll scrub.

1.4 Geology

EL 3/2015 covers approximately 2/3 of the Lefroy Goldfield in Tasmania's northeastern gold province.

Gold is hosted in steeply dipping quartz reefs generally striking east-west. The best geological description can be found in Reed 2002a).

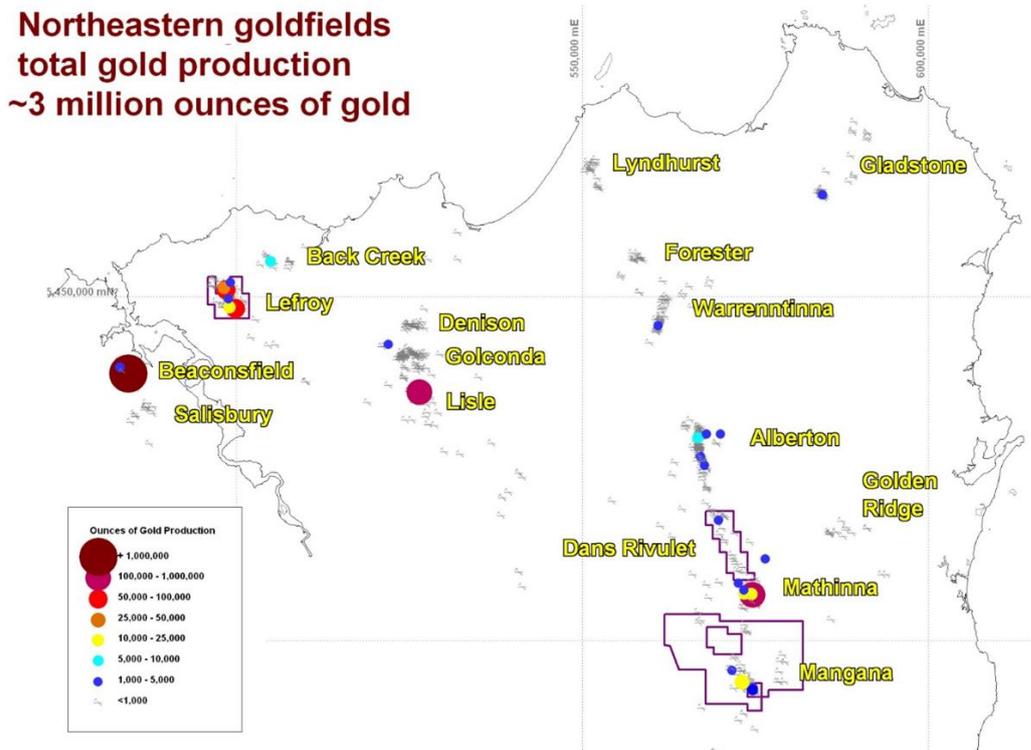


Figure 1.3: Location Lefroy goldfield in Tasmania's northeastern gold province.

Goldfield	Production - ounces of gold
Beaconsfield (inc Salisbury)	2,000,000
Lisle (inc. Denison & Golconda)	320,000
Mathinna	280,000
Lefroy	174,000
Alberton	22,000
Mangana	16,000
Back Creek	10,000
Gladstone	6,500
Dans Rivulet	3,000
Warrentinna (inc. Mt Horror)	3,000
Lyndhurst	800
Golden Ridge	300

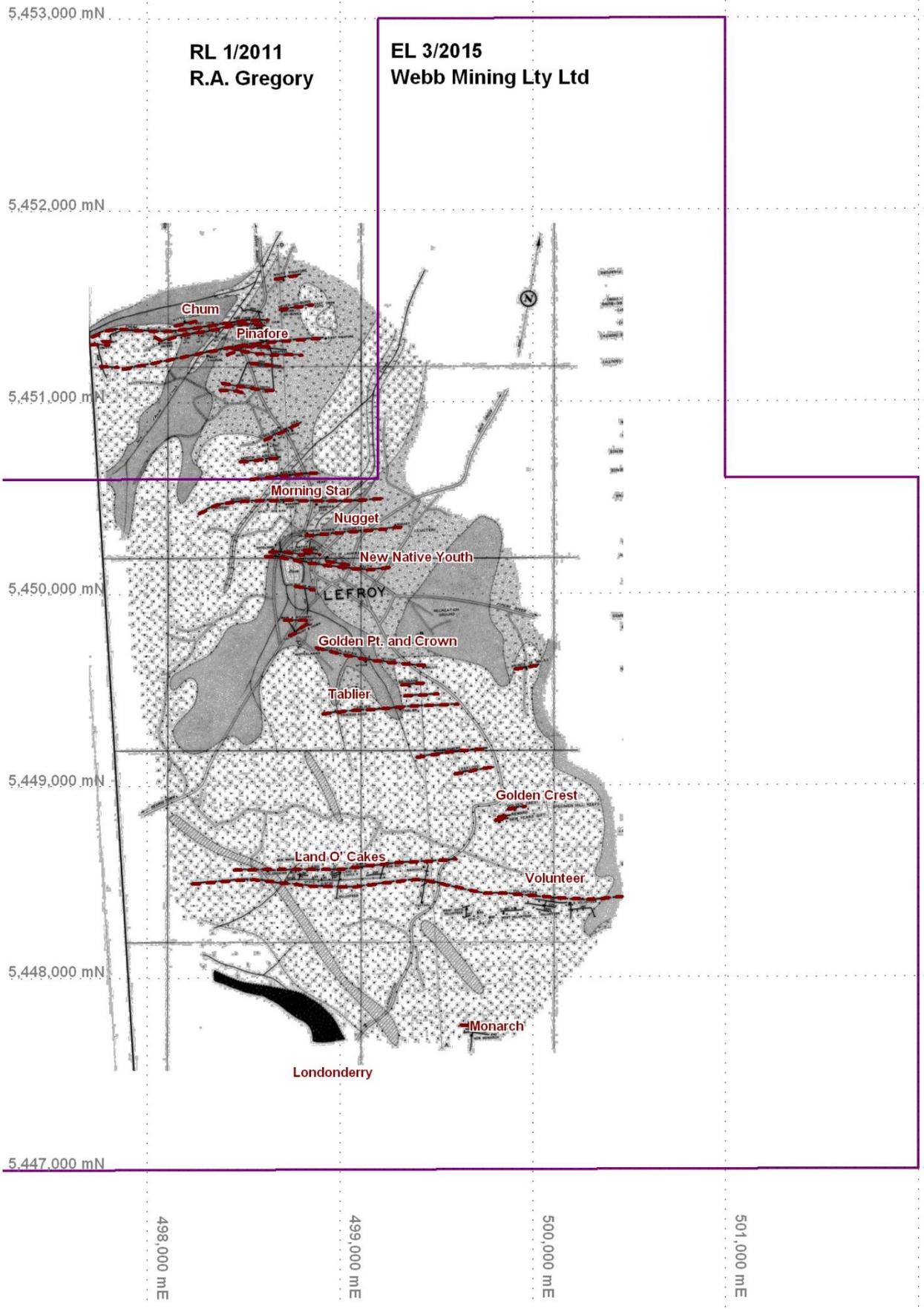


Figure 1.4: Lefroy goldfield with main reef lines as dashed lines. Geology after Groves (1964).

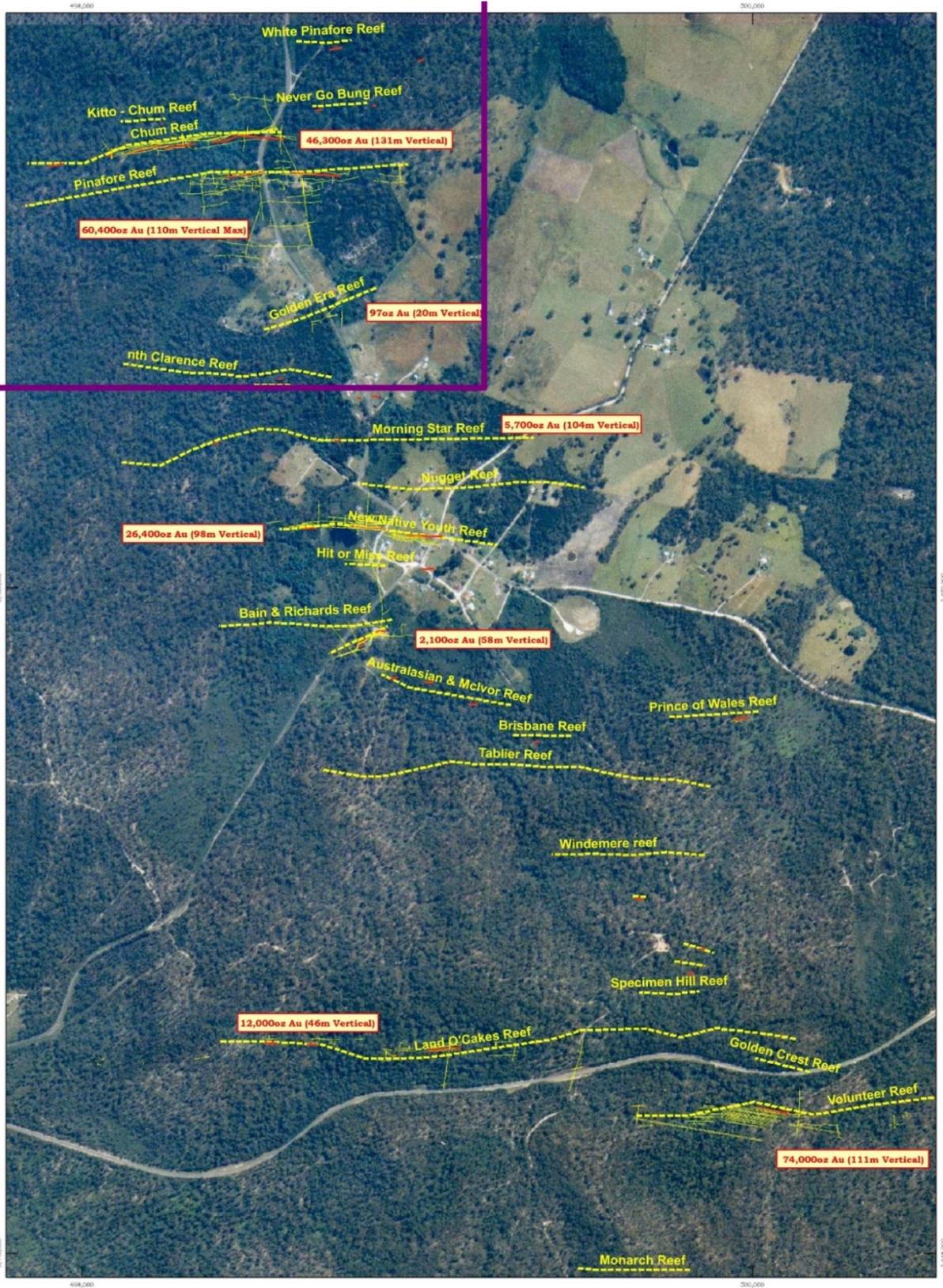


Figure 1.5: Lefroy goldfield aerial view looking north. Area to south and east of purple line held by Webb Mining Pty Ltd, rest held under RL 1/2011 by R Gregory. Yellow dashed lines are lines of reef, red barred sections are areas of stopping on the reef.

1.5 Exploration Philosophy

The licence area has been selected by Webb Mining Pty Ltd on the basis of its prospectivity for gold.

Gold at Lefroy was historically produced from commonly west plunging high grade shoots (or pods) on east-west reef lines. Significant producers include:

- Volunteer 74,000 ounces at 85g/t Au
- New Native Youth- 26,400 ounces at 11g/t Au
- Morning Star 5,700 ounces at 46g/t Au (reef grade) or 15 g/t Au recovered grade.
- Land of Cakes 12,000 ounces at 14g/t Au
- Deep Lead alluvial 32,000 ounces

Mines ceased operation at generally shallow depths citing drop in grades as a contributing factor. This fall is almost certainly an apparent drop with gold becoming refractory i.e. bound up in the sulphides and therefore not liberated by the more basic metallurgy in employ at the time. The Tasmania Reef at Beaconsfield was worked to a depth of 1.2km's with a significant portion of the gold refractory at depth. The Beaconsfield mill has biox technology specifically to break down and liberate this refractory gold.

Successful intersections of reefs beneath old workings e.g. 0.4m @ 6.5g/t Au in drillhole L4A beneath the Volunteer Mine and 1m @ 4.5g/t Au beneath the Land of Cakes workings argue show that ore does continue at depth.

Other than these holes there has been almost no drilling of these high grade reefs down plunge of the high grade shoots.

There is excellent potential to follow known high grade shoots down to considerable depth.

Many mine stopped at even shallower depths still in high grade ore e.g. Prince of Wales in 1.5m wide reef going 29g/t Au.

Given the in excess of 20 reef lines there is also considerable potential for undiscovered near surface high grade pods on known reef lines or completely new reef lines.

The Lefroy Goldfield has been soil sampled over its entire extent at 100m x 50m density at least, with denser sampling in some specific areas.

This density is ideally too coarse for short strike length high grade shoots, however, the existing sampling does "find" known reef lines and high grade shoots already. Significantly it also defines number of areas, particularly towards the southern end of the field at Londonderry where extensive anomalous arsenic was drill tested by a single fence of drillholes with intersections up to 2m @ 7.0g/t Au.

Webb Mining Pty Ltd plan to:

- Drill test depth extension of
 - Volunteer and
 - New Native Youth mines
- and other targets at
 - Morning Star and
 - Land of Cakes mines
- Surface trenching and shallow drilling around Londonderry intersections
- Prioritise other soil sample anomalies for infill soil sampling, trenching and shallow drilling

2.0 Review of Previous Work

2.1 Early Mining History

The Lefroy Goldfield contains many shafts and underground workings located on approximately 30 east-west striking gold reefs aligned in a 5 kilometre long north-northwest trending en-echelon array through the town of Lefroy.

Gold mining is documented to have begun in the area around 1864 (Gould, 1864) though mining is likely to have commenced much earlier, based on a report of gold being discovered at Lefroy in 1853 (McClenaghan, 1994).

The goldfield was the centre of discontinuous gold mining between 1869 and 1911, with two major mining booms, 1880 – 1885 and 1895 – 1898, over which time more than 180,000ozs of gold was recorded as being produced.

Records indicate that the average mined grade of the field was in excess of 30g/t Au (with most of the mining being restricted to a depth of approximately 30m; however some mining occurred to depths of 380m). Early reports suggest that as mining in the old goldfield progressed to depth, the ore became sulphidic and without the benefit of appropriate metallurgical technology many mines were closed as mill recoveries decreased. This factor combined with water infiltration and increasing mining costs forced the eventual closure of the field.

2.2 Modern Exploration History

2.2.1 DoM

The Tasmanian government drilled 13 diamond drillholes in the Lefroy goldfield from 1935 to 1938 in targeting beneath old workings. 10 of these holes were drilled in EL 3/2015. Core recoveries were poor and considerable drill deviation has probably occurred. BH8 and BH9 intersected the strike projection of the Volunteer mine (see figure 3.1).

2.2.2 Alluvial Exploration (1982-1993)

During the 1980's and 90's most of the activity in the field was focused on exploring for "deep lead" alluvial deposits. Several low-density soil-sampling programs were completed, and around 500 pits and costeans were dug along drainages.

2.2.3 Lefroy Gold Mines Pty Ltd (1993-2002)

Consolidated Kalgoorlie Gold Mines (CKGM) formed Lefroy Gold Mines (LGM), a wholly owned subsidiary, to explore the Field in the early 1990's. CKGM had been working to re-develop the Beaconsfield Gold Mine, and initial activity centred on delineating bulk low-grade hard-rock and alluvial targets to use as feed for the Beaconsfield Mine.

LGM explored the field from 1995 to 2002 using a combination of surface and geophysical mapping, geochemistry, rock-chip and mine dump sampling. Significant results were followed up with trenching, RAB and RC drilling mostly over historical mine areas.

A 55-hole hybrid RAB/RC drilling program was completed by LGM in 1996/1997, for a total of 1,150 metres, to a maximum depth of only 28 metres. Work targeted magnetic lows, old workings and geochemical anomalies mostly for bulk low-grade mineralisation. Results were generally disappointing with the best hole returning 1.5g/t over 5 metres.

2.2.4 Allstate Explorations NL (1997-2001)

Allstate Explorations NL (Allstate) entered into a JV agreement with LGM to explore principally for high-grade lode-style gold requiring them to spend \$700,000 over four years. Allstate withdrew from the JV in 2001 having spent \$300,000. Allstate completed four deep diamond holes at two locations (1 located west of Pinafore, 3 at Volunteer) in the Lefroy Gold Field for a total of 1,510 metres. The

drill holes were planned to intersect un-mined sections below historical high-grade lodes between 200 and 420 metres below surface.

Two of the three holes at Volunteer deviated and missed their targets, while one hole successfully reached target depth but experienced poor recoveries and showed low grades. Two “sister” holes were drilled off unsuccessful holes in an attempt to intersect the target zone. One of the sister holes again deviated; missing the ore zone and the other reached the proposed target depth, but was later interpreted to be short of the main target. This hole did, however, intersect the low-grade mineralised shear that hosts the high-grade ore, demonstrating that this structure continues at depth.

“The (drill) results show that it is possible to intersect significant gold values in un-mined sections of the reefs. This has not been demonstrated before at Lefroy. Almost certainly there is good grade ore yet to be found in the numerous strong and extensive reef lines, because the amount of systematic testing to date has been so limited” (Purvis, 1999).

2.2.5 Sapphire Trading Sapphire Trading Ltd (2002)

CKGM (LGM) surrendered the area in December 2001 due to economic considerations. The ground was subsequently awarded to Sapphire Trading Limited (Sapphire).

State funded airborne geophysical surveys flown over the Lefroy Gold Field in 1993 and 1999 was acquired and interpreted by Sapphire. Sapphire’s interpretation of the 1999 data, released in 2001 identified several highly prospective targets along known structures and at least one new structure. The interpretation showed the presence of an important aeromagnetic and radiometric anomaly representing a significant eastern extension of one of the largest reefs in the Field. The data also indicates that key mineralised structures continue strongly at depth and have the potential to hold large deposits.

2.2.6 Lefroy Resources Ltd. (2004-2007)

Lefroy Resources acquired the Tenements from Sapphire in 2004 and conducted detailed desktop mapping, ultra-high resolution airborne geophysics, field work, interpretation and drilling.

Lefroy Resources approached exploration from a systematic perspective with relative rankings and exploration result benchmarks.

Lefroy Resources targeted a number of old gold mines within the field with drilling around the New Native Youth, Morning Star, Brisbane, Nugget, Golden Point, Pinafore, South Pinafore, Chum, Hit or Miss and Land of Cakes mines.

Lefroy Resources carried out considerable historical research as well as drilling and in 2005 defined an underground (below 200m) Inferred Resource of 304,000t @ 22.9g/t Au for 225,000 ounces gold at the Pinafore Mine on RL 1/2011 and a near surface resource (above 200m) in 2006 of 616,000t @ 2.5g/t Au for 49,345 ounces gold. The resource was based on a series of RC and lesser diamond drillholes, many of which penetrated old workings. The resource was largely based around lower grade zones in the immediate hangingwall and footwall to the higher grade reef.

2.2.7 Beaconsfield Gold NL (2008-2011)

BGNL acquired the Lefroy project from Lefroy Resources Ltd in Feb 2008. A prime focus was the existing resources at the Pinafore as defined by Lefroy Resources.

Troy Lowien from Coffey reviewed the open-pitiable resource for BCD Resources and pointed out a number of issues “that hinder the classification of this resource as an Inferred Mineral Resource in accordance with guidelines as set out in the in the JORC Code guidelines (2004). These issues include the use of historical production figures in estimating grade, the use of stope fill assays in estimating grade and omitting to apply top or high grade cuts to the data to control the influence of outlying high grade samples.”

Lowien re-estimated the open-pitabile resource with the addition of a 4 RC and 2 diamond drillholes which had been drilled near surface in 2007.

Coffey Mining resource estimate - May 2009			
cut-off	Tonnes	grade	oz
0.5	936000	1.38	41400
1	810000	1.46	37900
1.5	167000	2.17	11600
2	32000	4.12	4200

Mining One carried out a Whittle optimization on this newly estimated resource and determined that the open cut needed a gold price in excess of A\$2000 to be viable.

BGNL also carried out further soil sampling and drilled fences of RC holes across a number of these anomalies.

3.0 Exploration completed during the reporting period

Work in the reporting period was largely desktop with the compilation of 2D and 3D geographical, geological, geophysical and geochemical data into MAPINFO/DISCOVER and SURPAC formats respectively.

Old workings plans were obtained digitally from Mineral Resources Tasmania's database. Level plans and sections for the New Native Youth, Volunteer, Land of Cakes and Morning Star mines were imported and registered into MAPINFO with digitised drive and shaft outlines exported as .dxf's back to SURPAC to create a 3D model of old workings and stoping. That work is ongoing but is sufficiently complete.

Historical drill data, i.e. collars, surveys, assays and lithology was imported into an ACCESS database and displayed in 3D in SURPAC with the underground workings. This allowed accurate determination of intersection locations with respect to reef lines. These pierce points were exported as xyz co-ordinates.

2D long sections were compiled with these pierce points placed on digitised historical sections showing stoping, and by inference the geometry of payable shoots.

This work is displayed graphically in figures 3.1 to 3.5.

Historical soil geochemical data was also compiled from the three historical soil sampling surveys and a series of gridded and colour images produced highlighting gold and arsenic anomalism as displayed in figures 3.6 to 3.8.

4.0 Discussion of Results

Results are best shown graphically.

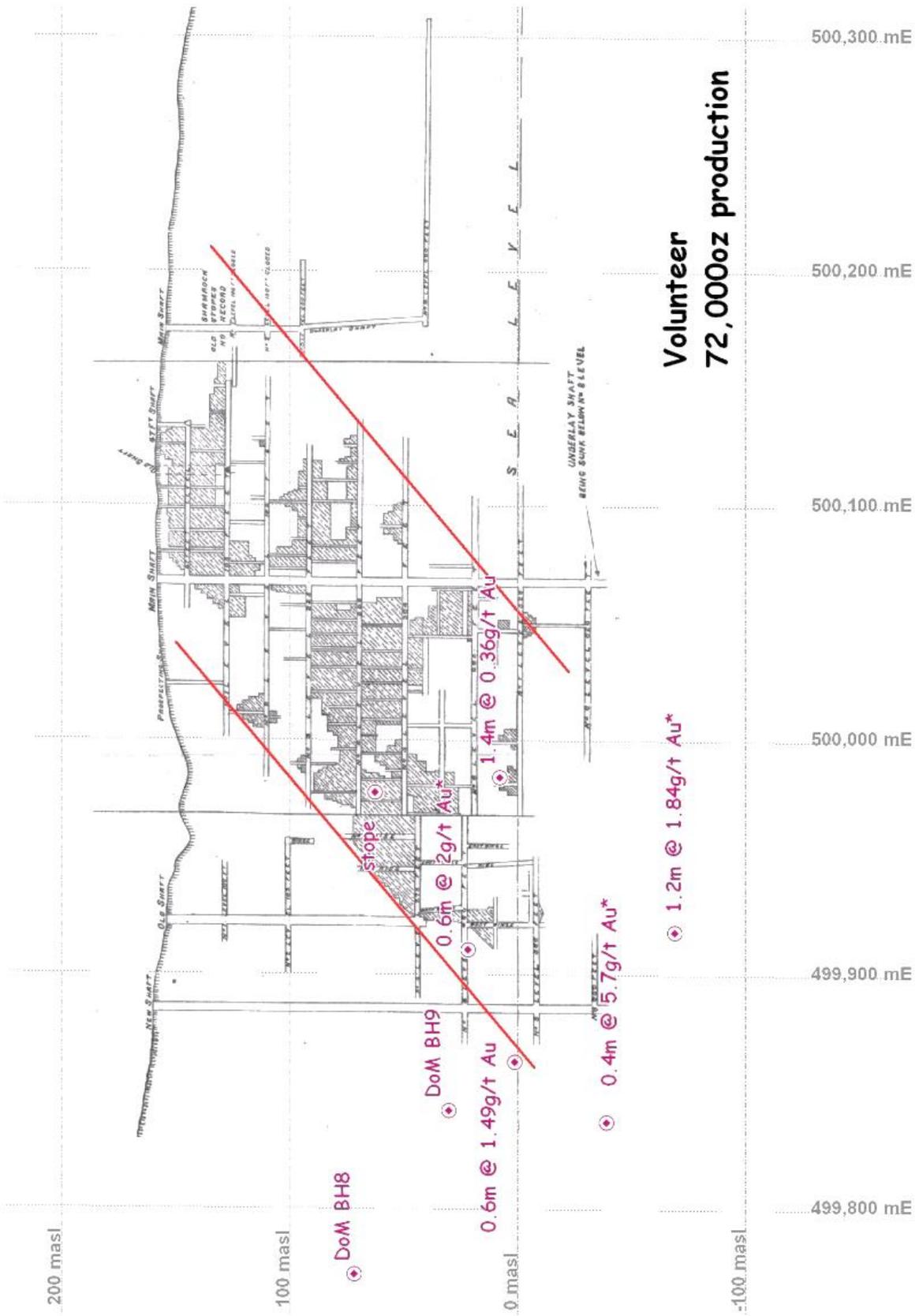


Figure 4.1: Volunteer mine long section view looking north. Maroon dots are drillhole intersections with the reef. Gold grades are downhole lengths.



Figure 4.2: New Native Youth mine long section showing main branch stoping - view looking north. Maroon dots are drillhole intersections with the main branch reef, purple dots with a separate minor branch reef. Gold grades are downhole lengths.

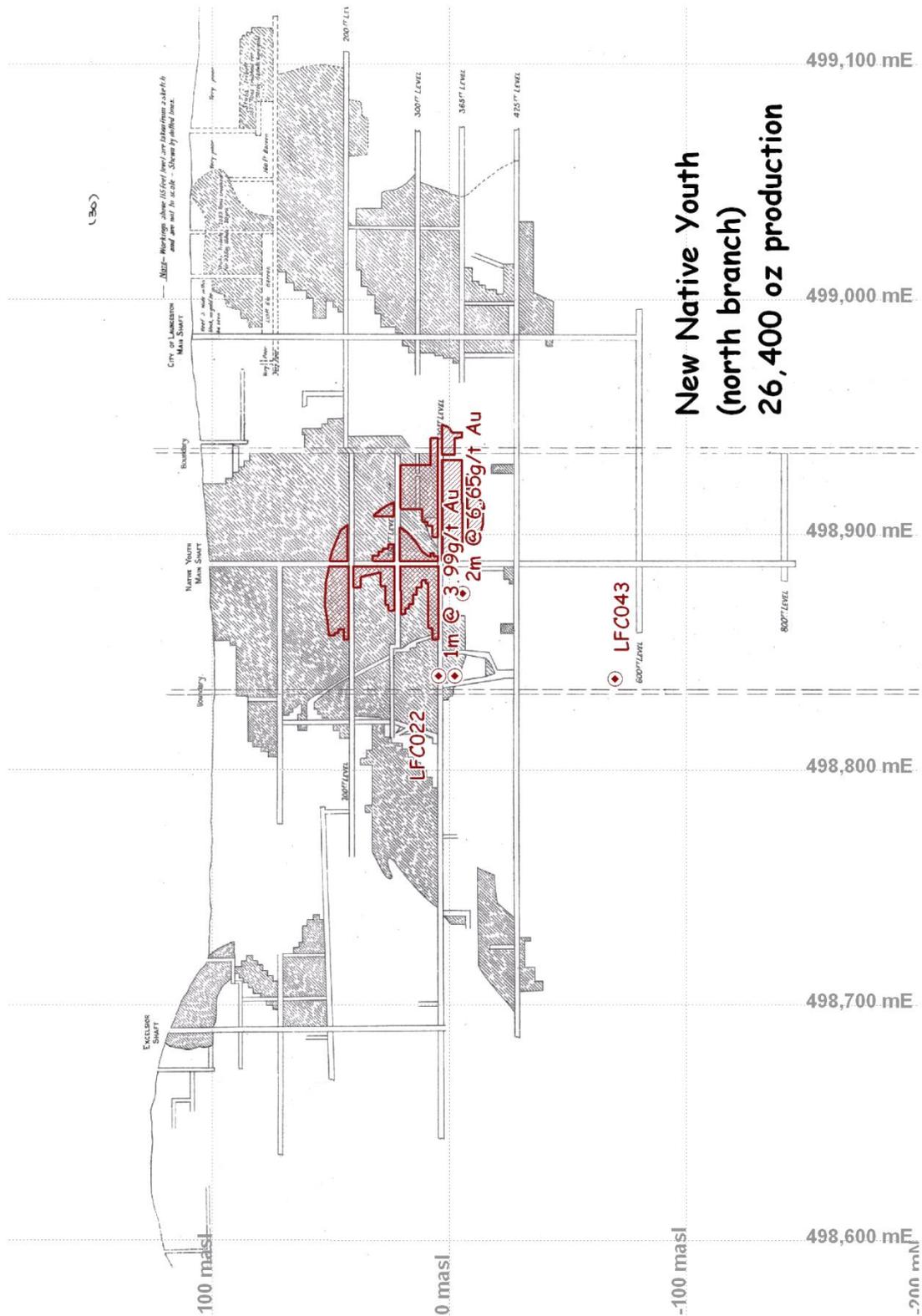


Figure 4.3: New Native Youth mine long section showing north branch stopping - view looking north. Maroon dots are drillhole intersections with the north branch reef. Gold grades are downhole lengths.

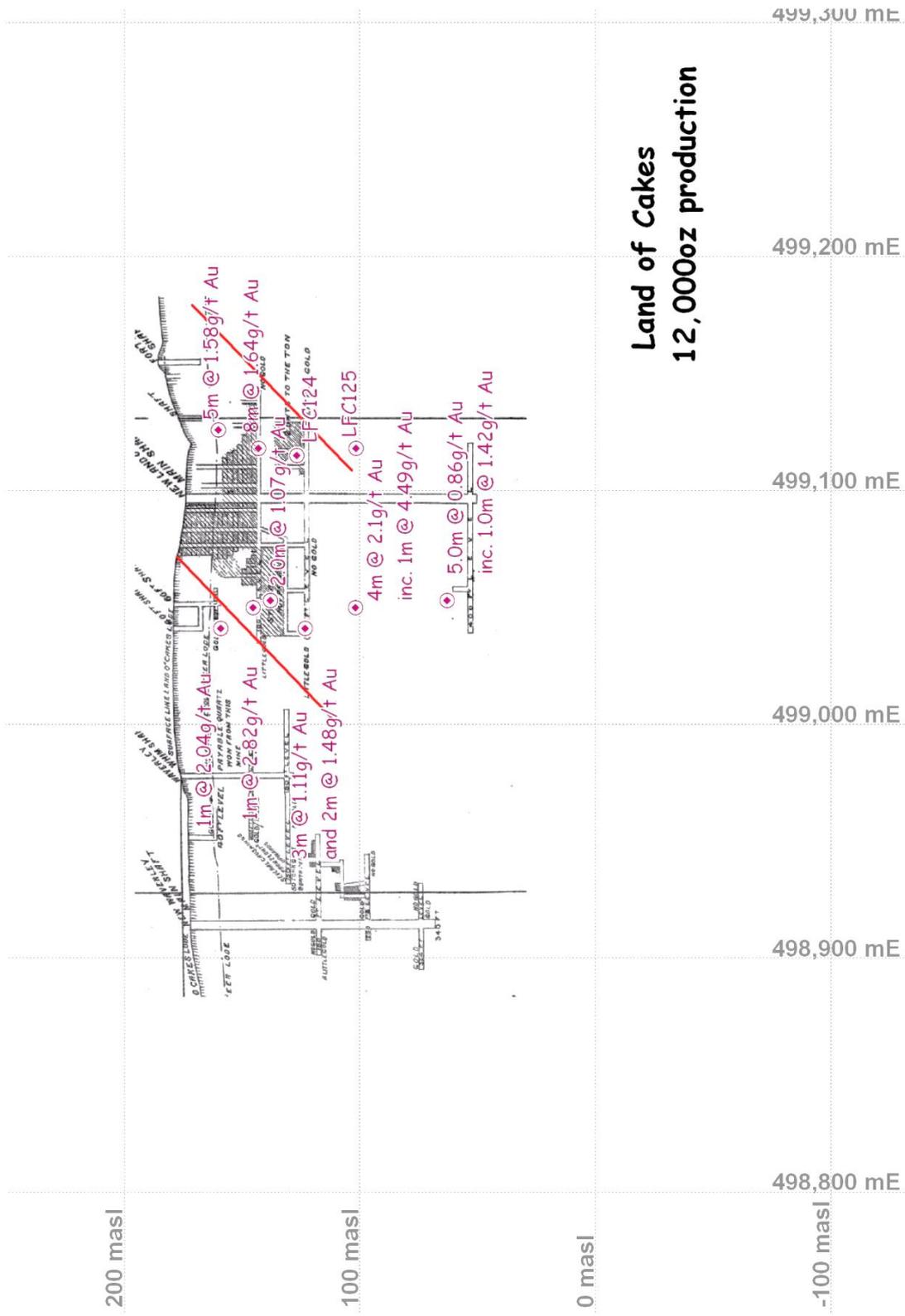


Figure 4.4: Land of Cakes mine long section view looking north. Maroon dots are drillhole intersections with the reef. Gold grades are downhole lengths.

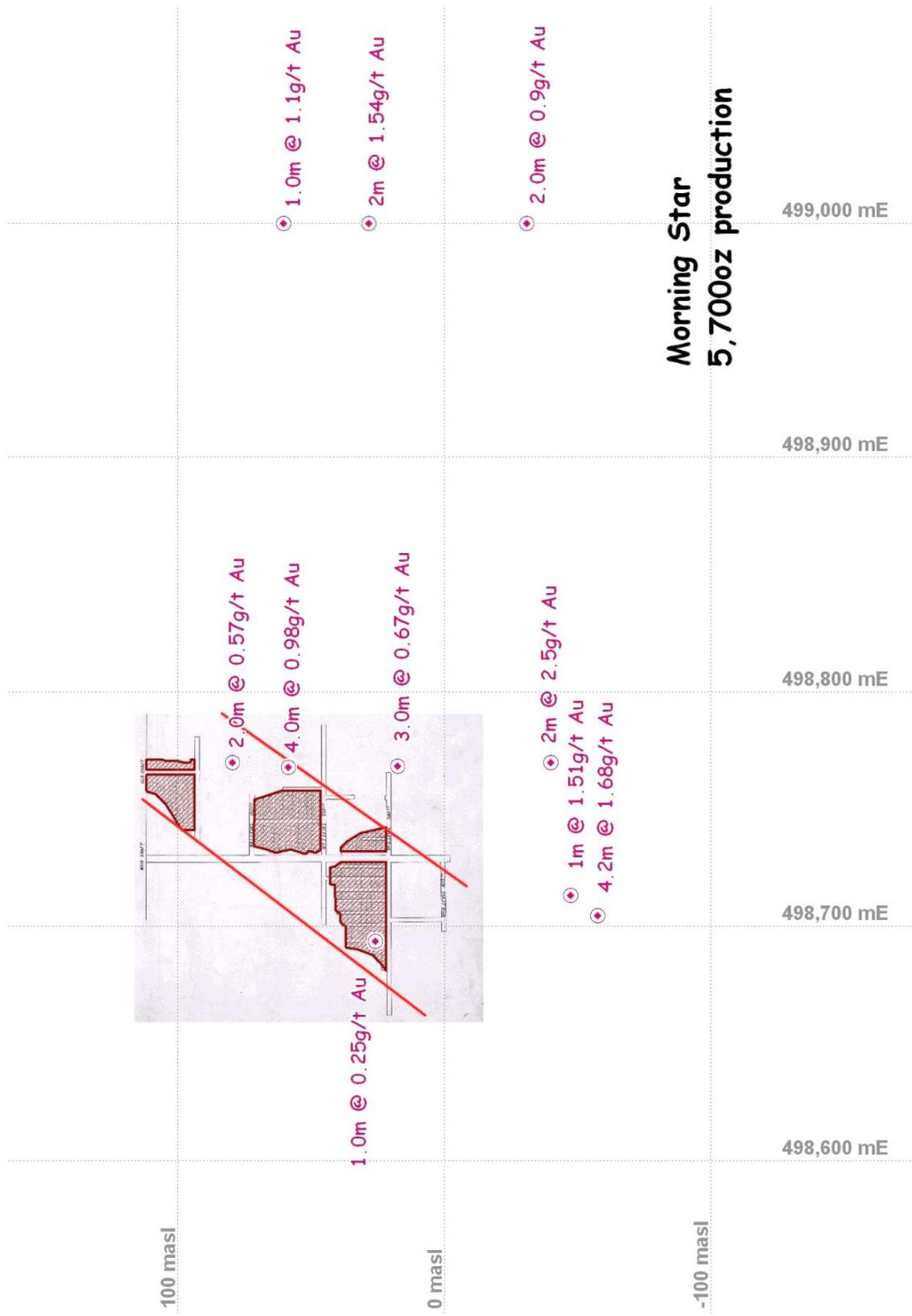


Figure 4.5: Morning Star mine long section view looking north. Maroon dots are drillhole intersections with the reef. Gold grades are downhole lengths.

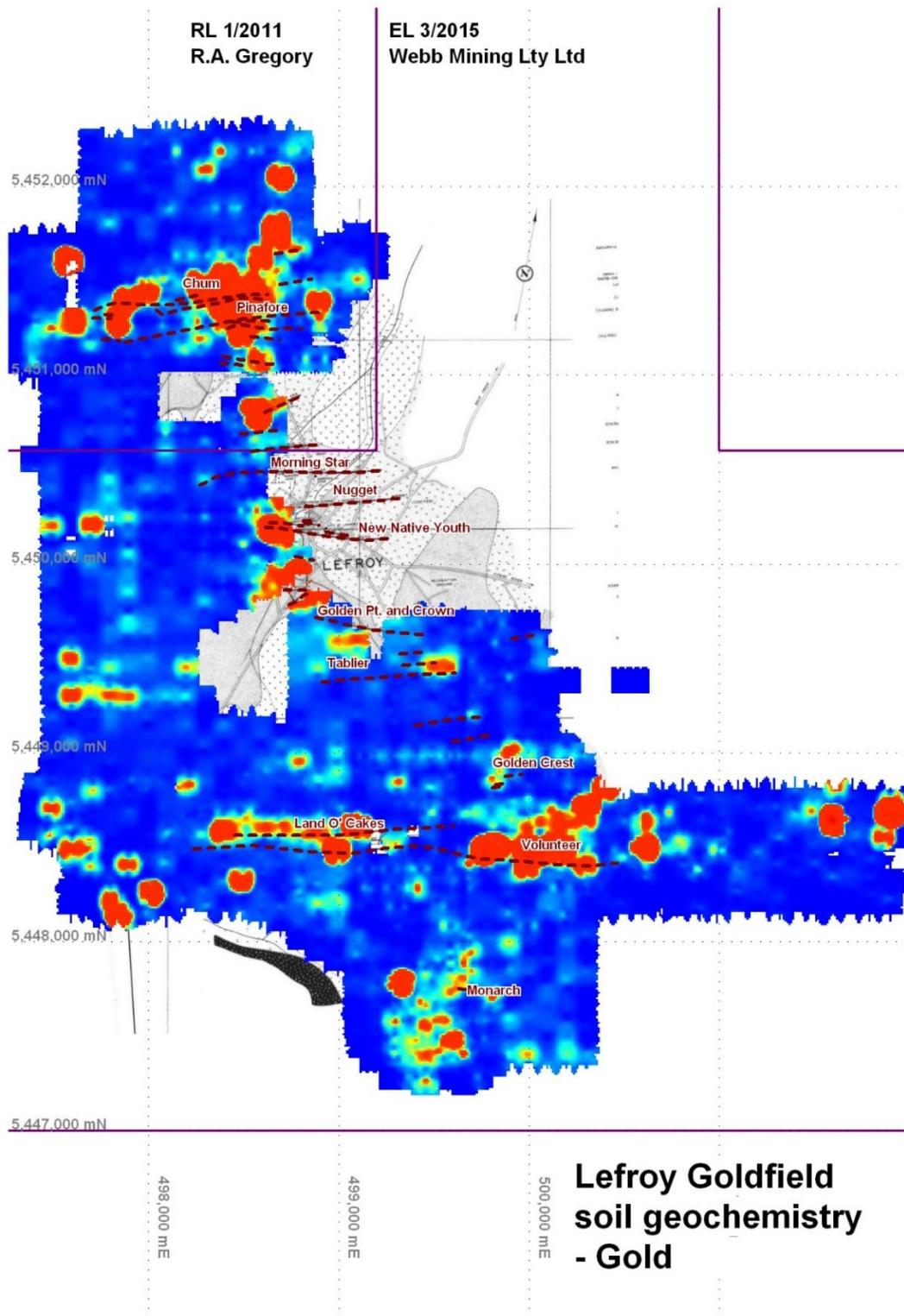


Figure 4.6: Lefroy goldfield soil geochemistry – gold. (Red = hot = high grade, blue = cold = low grade).

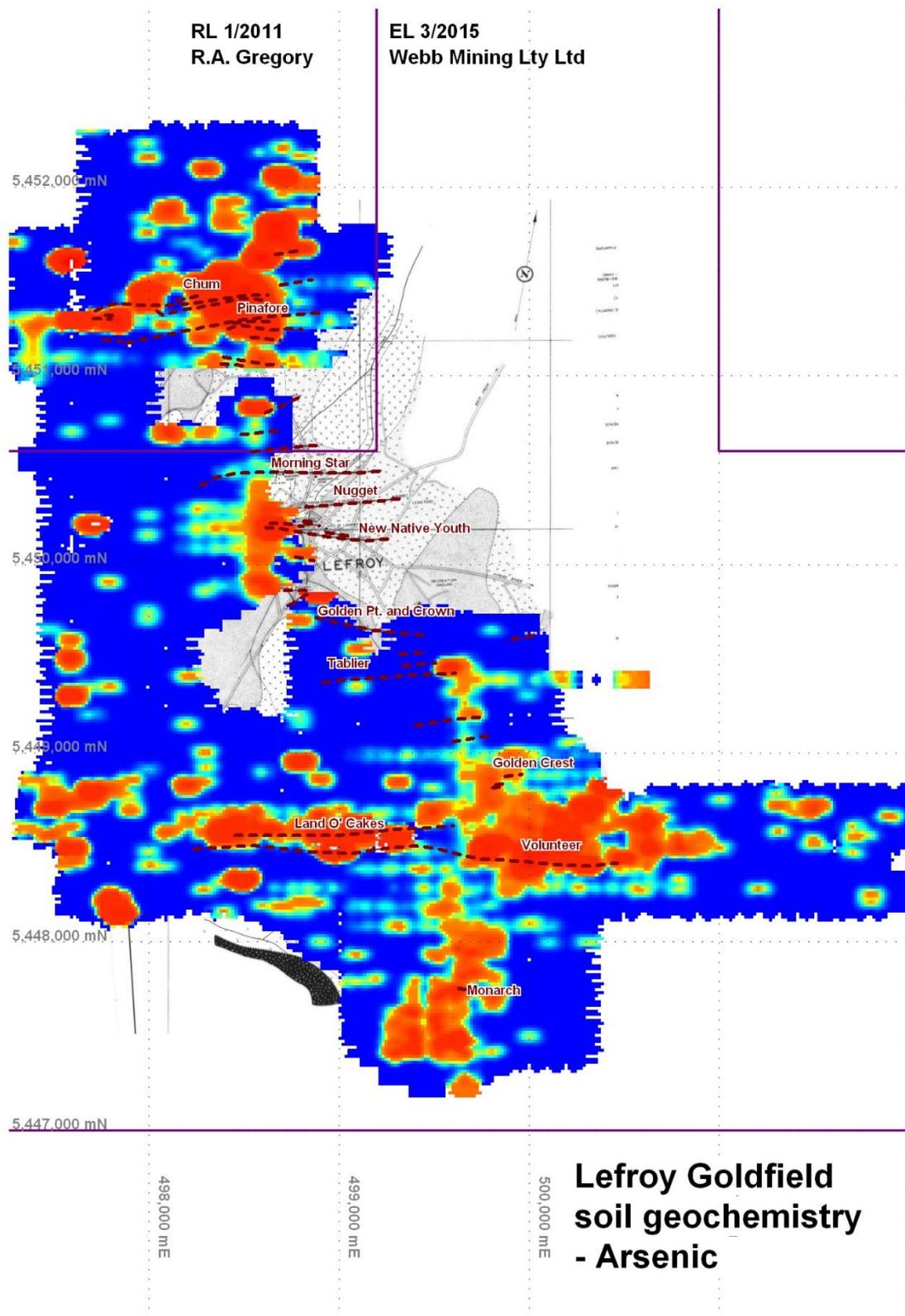


Figure 4.7: Lefroy goldfield soil geochemistry – arsenic. (Red = hot = high grade, blue = cold = low grade).

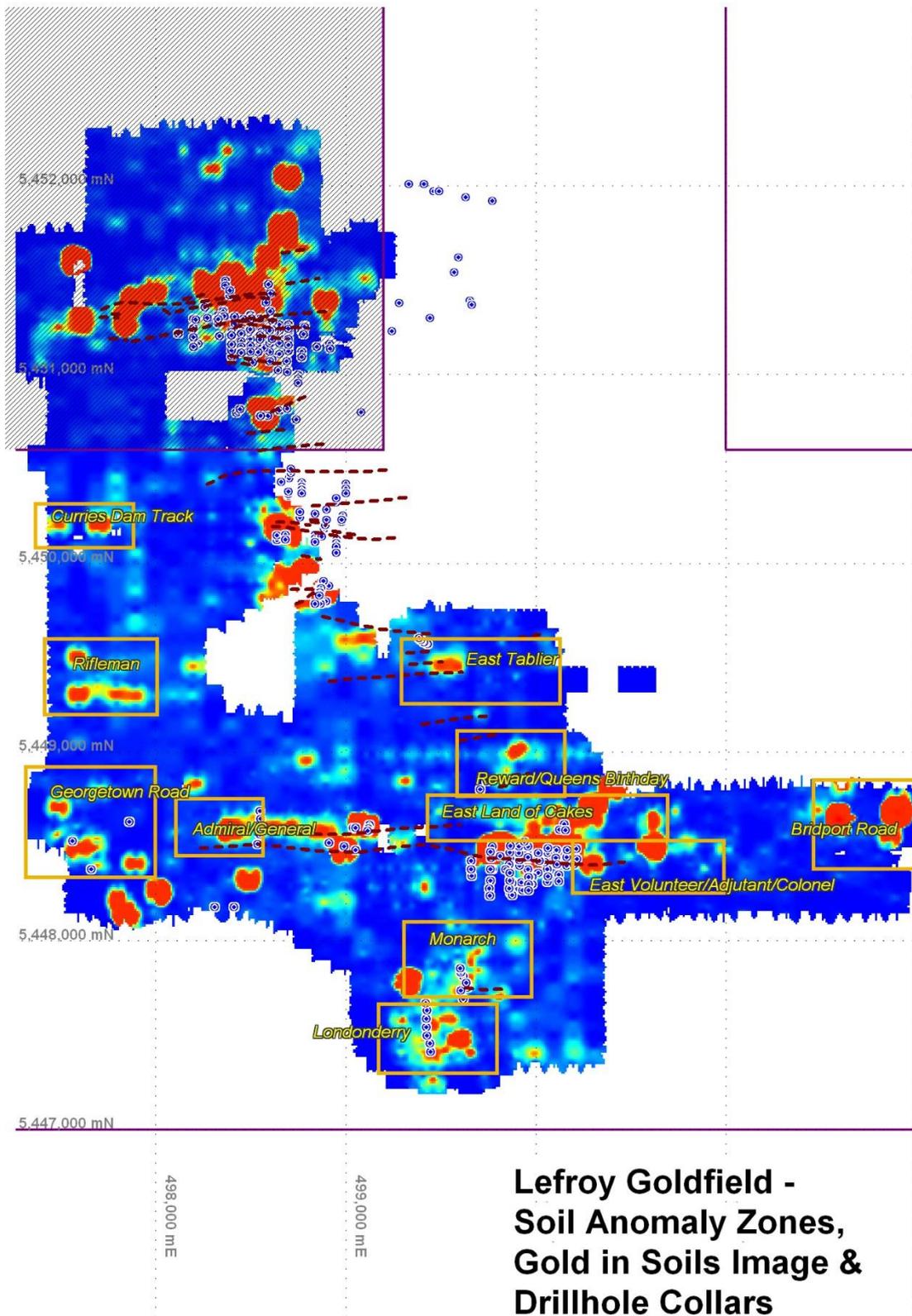


Figure 4.8: Lefroy Goldfield soils (gold) showing discrete prospect zones.

5.0 Recommendations

The licence has excellent potential for undiscovered high grade shoots of Volunteer type beneath current mines and as near surface shoots away from the main mines.

The Volunteer mine produced 75,000 ounces at 85g/t Au per 200m vertically =**375oz/m** which compares well with the New Golden Gate mine 250,000 ounces at 24g/t Au per 600m vertically =**417oz/m** and the Tasmania Reef 2,000,000 ounces at 17g/t Au per 1200m vertically =**1667oz/m**.

Work can target near surface undiscovered high grade shoots producing gold and/or arsenic soil anomalism with further infill soil sampling, excavator trenching and shallow drilling.

Potential targets are steeply dipping, high grade shoot with dimensions 50m long x 80m deep (open) and ~1m thick at 15-30g/t Au, open pitable.

Deeper targets exist beneath Volunteer and New Native Youth mines (as a priority) as well as the Land of Cakes and Morning Star mines.

- Drill beneath Volunteer gold mine – 20 holes (do min. 5 for 2500m) for 9500m
- Drill beneath New Native Youth gold mine – 20 holes (do min. 5 for 2000m) for 7500m.
- Investigate potential for other deeper reef targets e.g. Morning Star, Land of Cakes

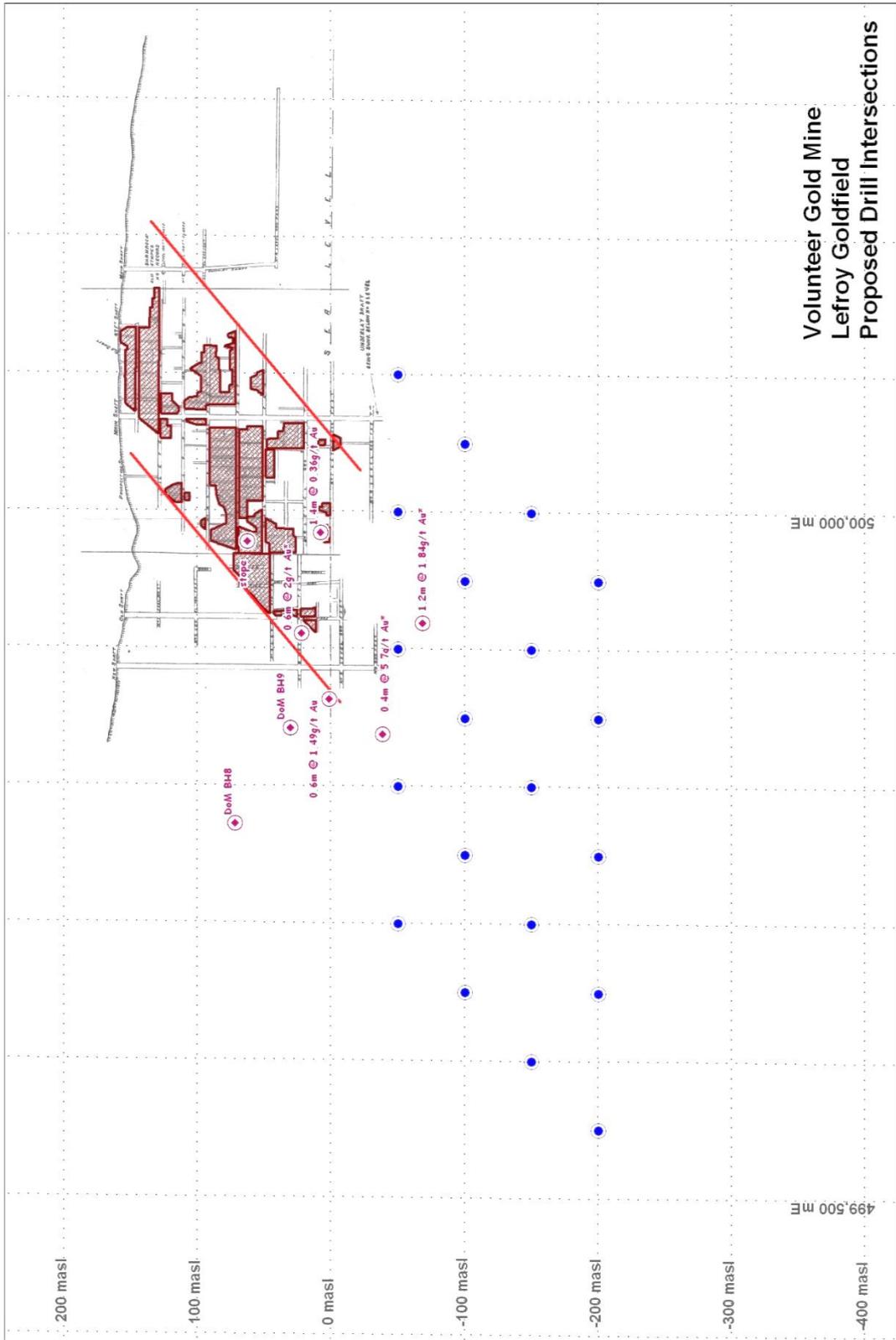


Figure 5.1: Volunteer gold mine long section view looking north showing proposed drill intersection points.

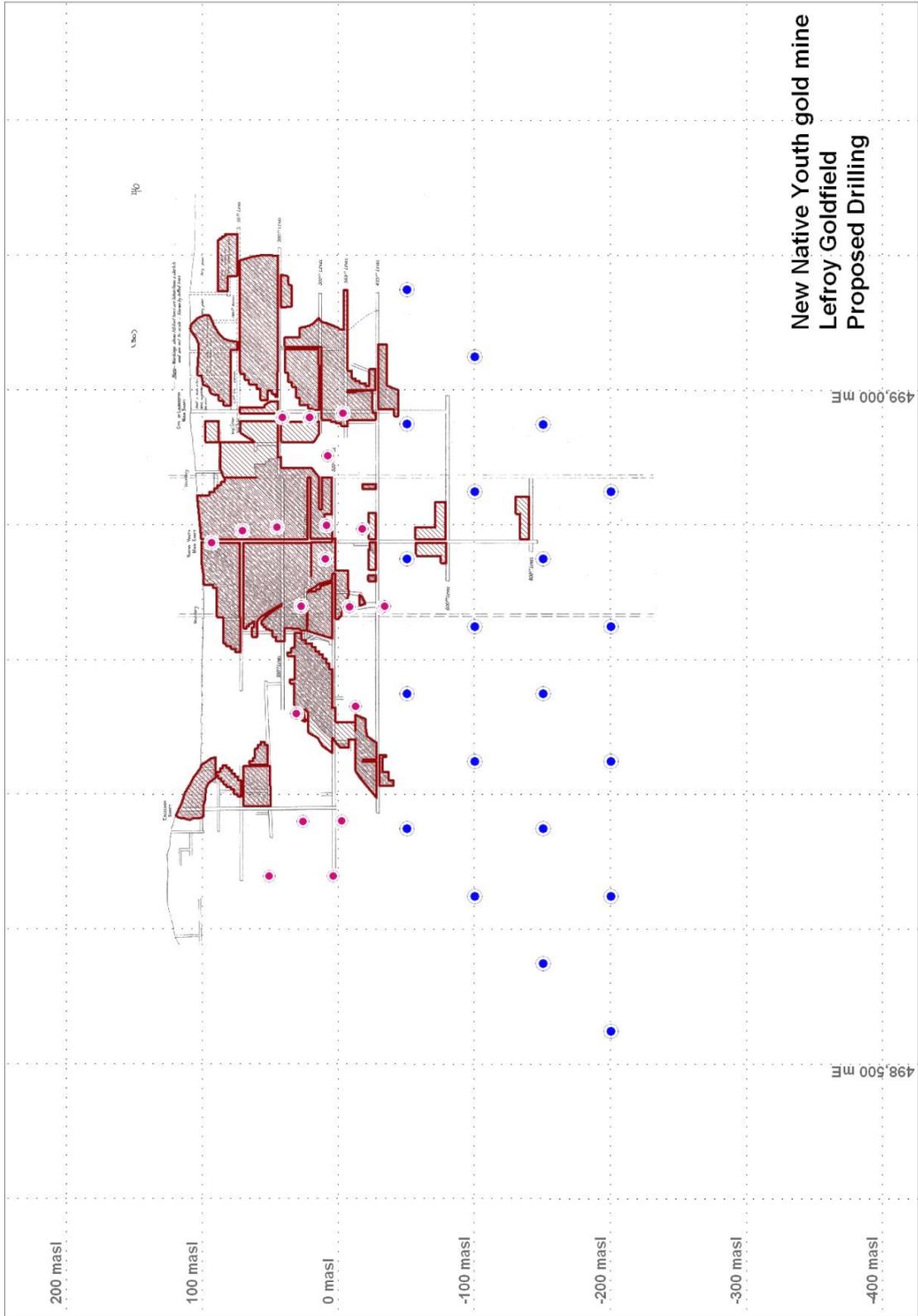


Figure 5.2: New Native Youth gold mine long section view looking north showing proposed drill intersection points.

6.0 Environment

No field work was carried out in this the first year of the licence and hence there is nothing to report.

7.0 References

- Askins P.W. (1977) Lefroy Project: FINAL REPORT ON E.L. 26/76 LEFROY
- Baxter J. (2006) Lefroy Project: An Upgrade of the Structural Geology of the Lefroy Goldfield Based on a Review of Surface Mapping (May, 2006) and Historical Work
- Baxter J. & Fulton R. (2006a) Lefroy Project: Structural Geology Review Lefroy Goldfield Based on Pinafore Drilling, Surface Mapping and Historical Work
- Baxter J. & Fulton R. (2006b) Lefroy Project: Review of Native Youth and Volunteer, Lefroy Goldfield Based on Drilling to August, 2006
- Broadbent G. (1983) Lefroy Project: PIPERS RIVER EL 53/80 GEOLOGICAL REPORT FOR YEAR ENDING 17th DECEMBER, 1982. CRA EXPLORATION PTY. LIMITED.
- Canaris J., Lloyd C., Bradley K. & Baxter J. (2005) Lefroy Project: Exploration Potential
- Canaris J. Lloyd C. Bradley K. Baxter J. (2006) Lefroy Project: ELs 35/2001, 2/2002, 43/2003, 44/2003, 45/2003, 39/2004, 12/2006, 13/2006 Combined Annual Report 2006
- Hills P.B. (2000) Lefroy Project: Annual and Final Report – Lefroy EL 1/95, Allstate Explorations NL.
- Keele R.A. (1995) Lefroy Project: Ann Rept Exploration EL 21_94 Bell Bay and 22_94 Pipers River CKGM
- Keele R.A. (1996) Lefroy Project: Ann Rept Lefroy EL 1_95 CKGM 96-3852
- Keele, R.A. (2004) Lefroy Project: EL 2/2002 Annual Report
- Lloyd C. & Baxter J. (2007) Lefroy Project: Project Review and Recommendations
- Lloyd C. (2007) Lefroy Project: Combined Annual Technical Report LEFROY PROJECT EL35/2001, 2/2002, 43/2003, 44/2003, 45/2003, 39/2004, 12/2006, 13/2006, 30/2006, 13/2007, 16M/1991
- Lloyd C., Canaris J., Bradley K. & Baxter J. (2005) Lefroy Project: Inferred Resource Estimation Report Pinafore “Underground”
- Lloyd C., Canaris J., Bradley K. & Baxter J. (2006a) Lefroy Project: Inferred Resource Estimation Report Pinafore “Open Pitable”
- Lloyd C., Canaris J., Bradley K. & Baxter J. (2006b) Lefroy Project: Inferred Resource Estimation Report Pinafore “Tailings”
- Lloyd C., Fulton R., Bradley K. & Baxter J. J. (2006) Lefroy Project: Exploration Model
- McClenaghan, M.P. (1993). A summary of the Beaconsfield, Lefroy, Back Creek and Gladstone goldfields. *Min. Res. Tasm. 1994/03*
- Morrison K.C. (2008) Lefroy Project: Lefroy Project ann rept
- Morrison K.C. (2009) Lefroy Project: Lefroy Project ann rept
- Morrison K.C. (2010) Lefroy Project: 10_6141
- Morrison K.C. (2012) Lefroy Project: Lefroy Project Final Report
- Purvis J.G.P. (1997) Lefroy Project: Annual Report – Lefroy EL 1/95, Allstate Explorations NL.

- Purvis J.G.P. (1998) Lefroy Project: Annual Report – Lefroy EL 1/95, Lefroy Joint Venture.
- Purvis J.G.P. (1999) Lefroy Project: Annual Report – Lefroy EL 1/95, Allstate Explorations NL.
- Reed A.R. (2001) Lefroy Project: Pre-Tabberabberan deformation in eastern Tasmania: extension of the Benambran Orogeny. *AJES* 48; 785 – 796.
- Reed A.R. (2002a) Lefroy Project: Formation of Lode-style gold mineralisation during Tabberabberan wrench faulting at Lefroy, eastern Tasmania, *Aust. J. of Earth Sciences*.
- Reed A.R. (2002b) Lefroy Project: Targeting Hard-Rock Gold Mineralisation at Lefroy, Northeastern, Tasmania, Australia. Sapphire Trading In-House Confidential GIS.
- Reed A.R. (2004) Lefroy Project: Gold mineralisation and the regional Palaeozoic structure of the Mathinna Supergroup, eastern Tasmania: Mineral Resources Tasmania, Tasmanian Geological Survey Record 2004/01
- Vines (2006a) Lefroy Project: Pinafore Heritage Assessment
- Vines (2006b) Lefroy Project: Native Youth Heritage Assessment
- William, P., Bucci, L., Guibal D., Morley, A., Roberts, A., Simpson, R., (2005) Lefroy Project: SRK Project LFR001 Phases 1 & 2 - Geological Modelling and Geostatistical Review