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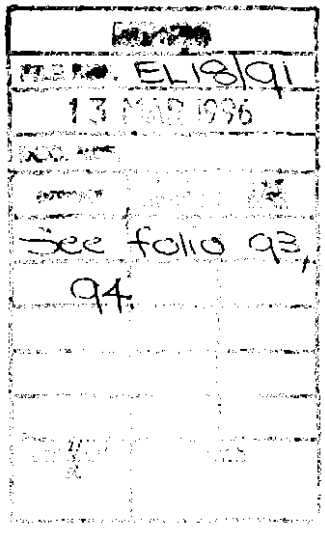
328001

RESOLUTE SAMANTHA LIMITED

ANNUAL REPORT
1995

VOLUME 1 | 2

EL 18/91
"MANGANA"



Grant MacDonald
February 1996
GM609:da

AMG REFERENCE POINTS ADDED

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1.0 SUMMARY

Gridded soil sampling (100 m x 50 m) was conducted over most areas of known old gold workings within EL 18/91 Mangana. Results were disappointing with perhaps only one anomaly warranting further work.

Historical research and geological mapping, the latter somewhat limited, indicate that surface enrichment has probably not taken place and that high grade gold mineralisation can be expected at depth. However, high grade mineralisation appears to form in subvertical shoots with limited strike extent.

Limited rock and channel sampling has downgraded the potential for stockwork or sheeted vein bulk tonnage deposits.

An over reliance on soil sampling, whose generally poor results downgraded the potential of the EL, may have been misguided. The untested potential for high grade mineralisation under known old workings should be prioritised. The soil anomaly on Blackboy Ridge with its coincident aeromagnetic structure should also be prioritised.

2.0 INTRODUCTION

2.1 Location

EL 18/91 "Mangana" is centred on the township of Mangana, an old gold mining town, in Tasmania's north-east (see Figure 1).

Mangana lies 65 kilometres due east of Launceston.

2.2 Tenure

EL 18/91, previously held by Alex White, was transferred to Resolute Resources Ltd (now Resolute Samantha Ltd) on 8th of March 1995. EL 18/91 covers an area of 10 km^2. The licence is due for renewal on 29 May 1996. On 29 May 1997 half of the area must be relinquished.

2.3 Land Status/Usage

Most of the area covered by EL 18/91 is private land with the central eastern and northernmost parts under state forest (see Figure 2).

Land usage essentially follows topography with the river flats under pasture or as residential blocks whilst the forested hills are largely not utilised with only a few areas having been recently logged.

2.4 Topography/Vegetation

EL 18/91 covers the flood plains of both the Tower Rivulet and Richardson's Creek in the south-western half with the north-eastern half covering moderately steep ($\approx$ 25°) hills and gullies (see Figure 2).

As stated, the river flats are under pasture whilst the hills are almost invariably covered by very open "iron bark" eucalypt forest with effectively no understorey. The only exception to this is in gullies and south facing slopes where vegetation is dominated by wattles and other understorey species.

2.5 Access

Access to EL 18/91 is excellent with a sealed road leading to Launceston. Access within the licence is reasonable in the hilly areas with a number of 4 WD tracks following ridge lines.

RESOLUTE SAMANTHA LIMITED

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EL 18/91 "MANGANA"

LOCATION

AMG REFERENCE POINTS ADDED

5 cm

3.0 GEOLOGY

3.1 Introduction

Geological mapping was a major component of the exploration work conducted this year. That work forms the basis for section 3.3 - Mangana Geology whilst Section 3.2 - Regional Geology is based largely on work by the Tasmanian Mines Department.

3.2 Regional Geology

EL 18/91 lies towards the southern end of the distinctively north-north-west trending lineament of gold deposits which extend from Mangana in the south to Lyndhurst on the coast. The gold deposits occur as auriferous quartz reefs hosted in the Mathinna beds, a sequence of pelitic to quartzwacke turbidites.

The Mathinna Beds outcrop over much of the north-east and are known to contain units of both Ordovician and Silurian age. They are the oldest known rocks in the north-east.

The Mathinna beds are intruded by I and S - type granitoids which range in age from Late Devonian to Early Carboniferous. The intrusive sequence has been shown in almost all cases to be granodiorite (oldest), adamellite, alkali felspar granite (youngest). The Lyndhurst-Mangana gold lineament lies along a 'corridor' of the Mathinna beds bounded to the west by the Scottsdale Batholith and to the east by the Blue Tier Batholith. This 'corridor' widens to the south.

Both the granites and Mathinna beds are overlain unconformably by Permo-Triassic glacimarine sediments of the Parmeener Supergroup. These sediments are intruded by Jurassic sills.

Tertiary basalts occupy palaeotopographic lows with tertiary gravels interbedded in tertiary gravels not uncommon.

All rocks are unconformably overlain by Quaternary alluvium in river valleys.

Structure

Regional mapping shows the major structures in the Mathinna beds to be north-north-west trending horizontal to shallowly plunging, asymmetrical folds with a (usually) south-westerly dipping axial planar surface indicating a regional easterly vergence (Williams and McClenaghan, 1989).

More recent work (Keele, 1994) argues that "the north east terrain of Tasmania can be conceived if as a gently west-dipping thrust wedge ... which had experienced crustal thickening during the Mid-Devonian orogeny".

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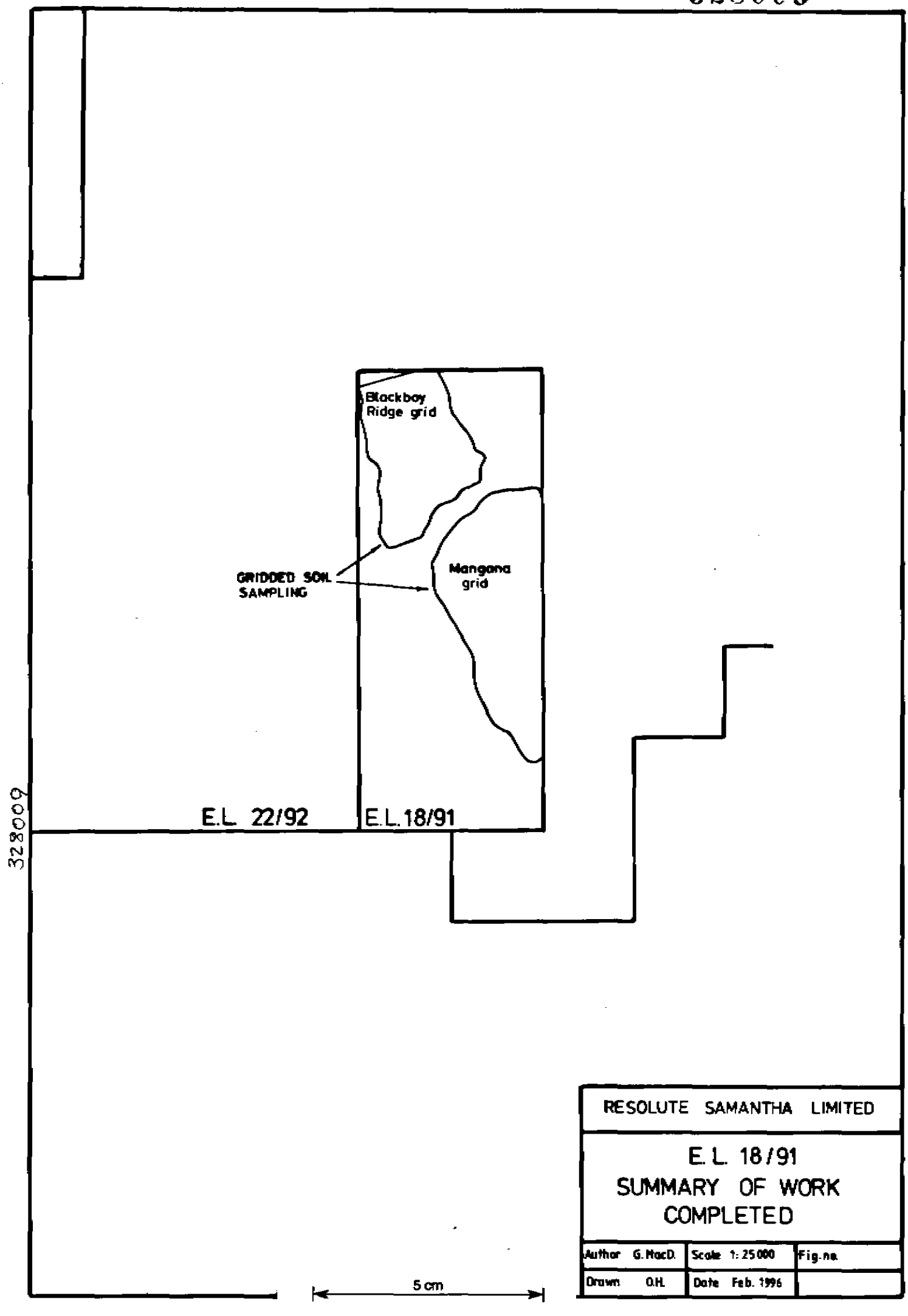
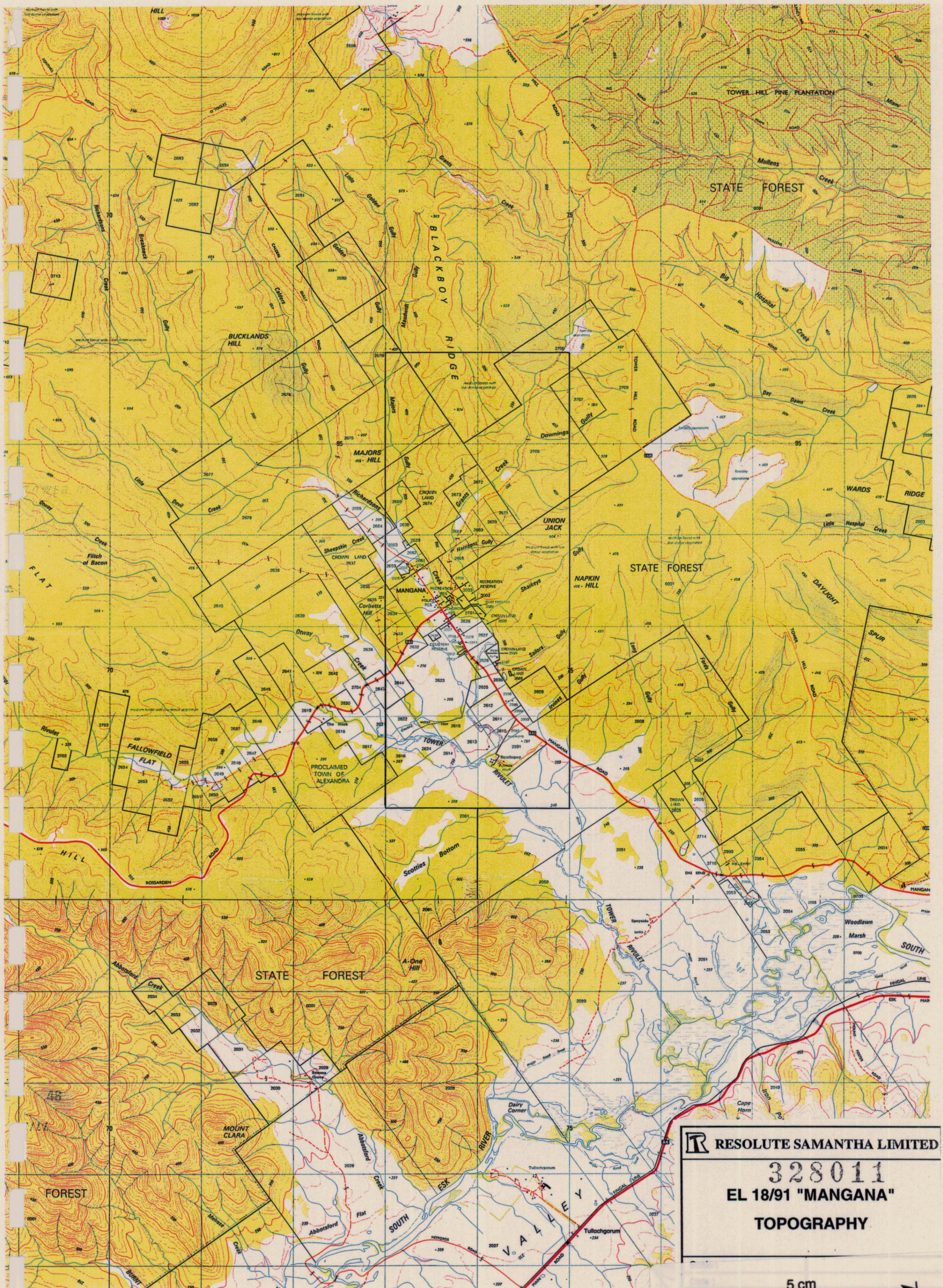


RESOLUTE SAMANTHA LIMITED

E.L. 18/91
SUMMARY OF WORK COMPLETED

Author G. MacD.	Scale 1: 25000	Fig. no.
Drawn O.H.	Date Feb. 1996	


U 328010
Tv
Vs
Fs
Ff
Mangena



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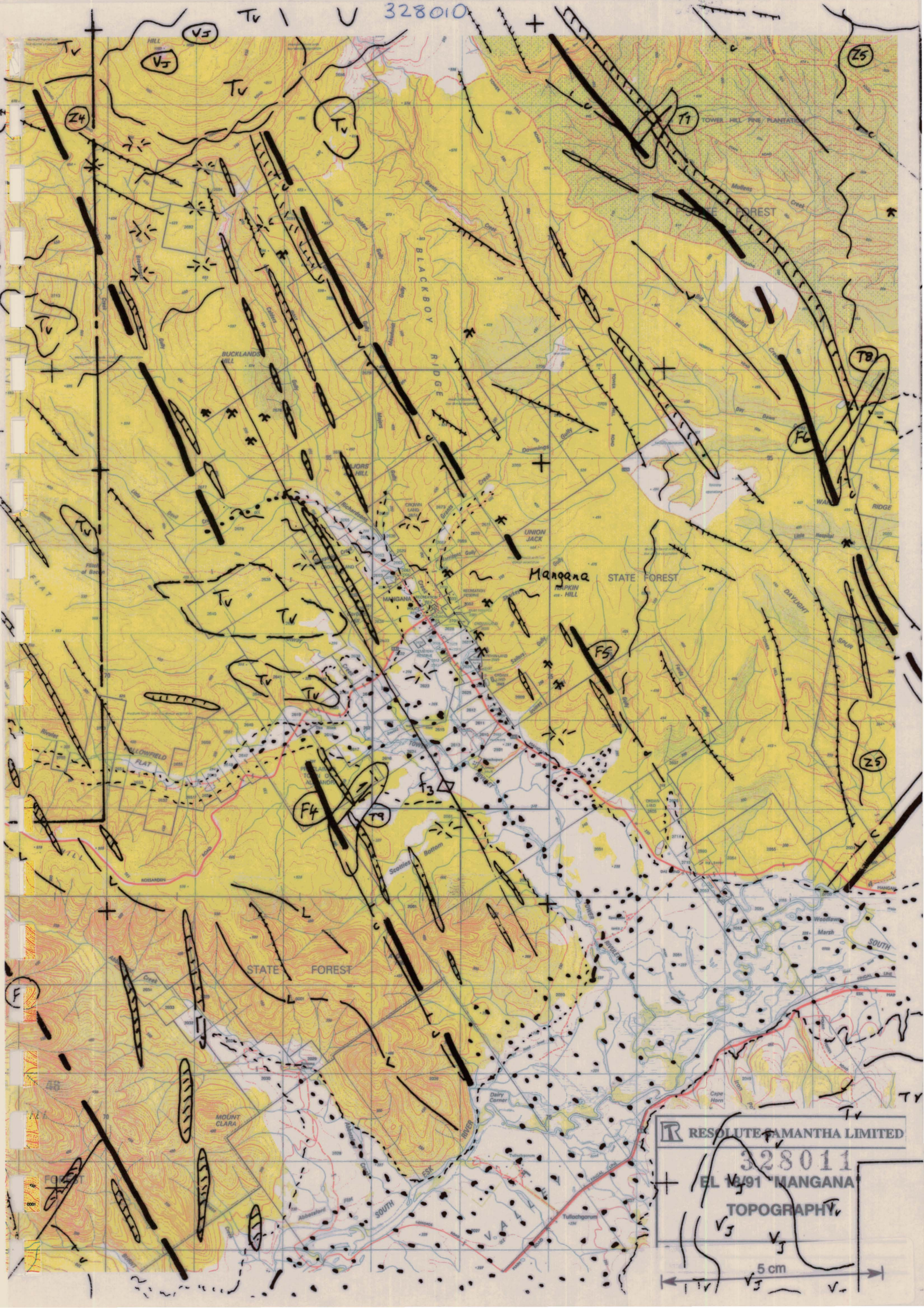
EL 18/91 "MANGANA"

TOPOGRAPHY

5 cm


328010
Tv
Vj
Z4
Z5
T1
T8
T9
F4
F5
F3
F
TOWER HILL PINE PLANTATION
STATE FOREST
BLACKBOY RIDGE
BUCKLANDS HILL
UNION JACK
MANGANA
STATE FOREST
MANGANA
HILL
DAYLIGHT
SPUR
WILLOWFIELD FLAT
ROSSARDEN
STATE FOREST
MOUNT CLARA
FOREST
RESOLUTE SAMANTHA LIMITED
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EL 1/91 "MANGANA"
TOPOGRAPHY
5 cm

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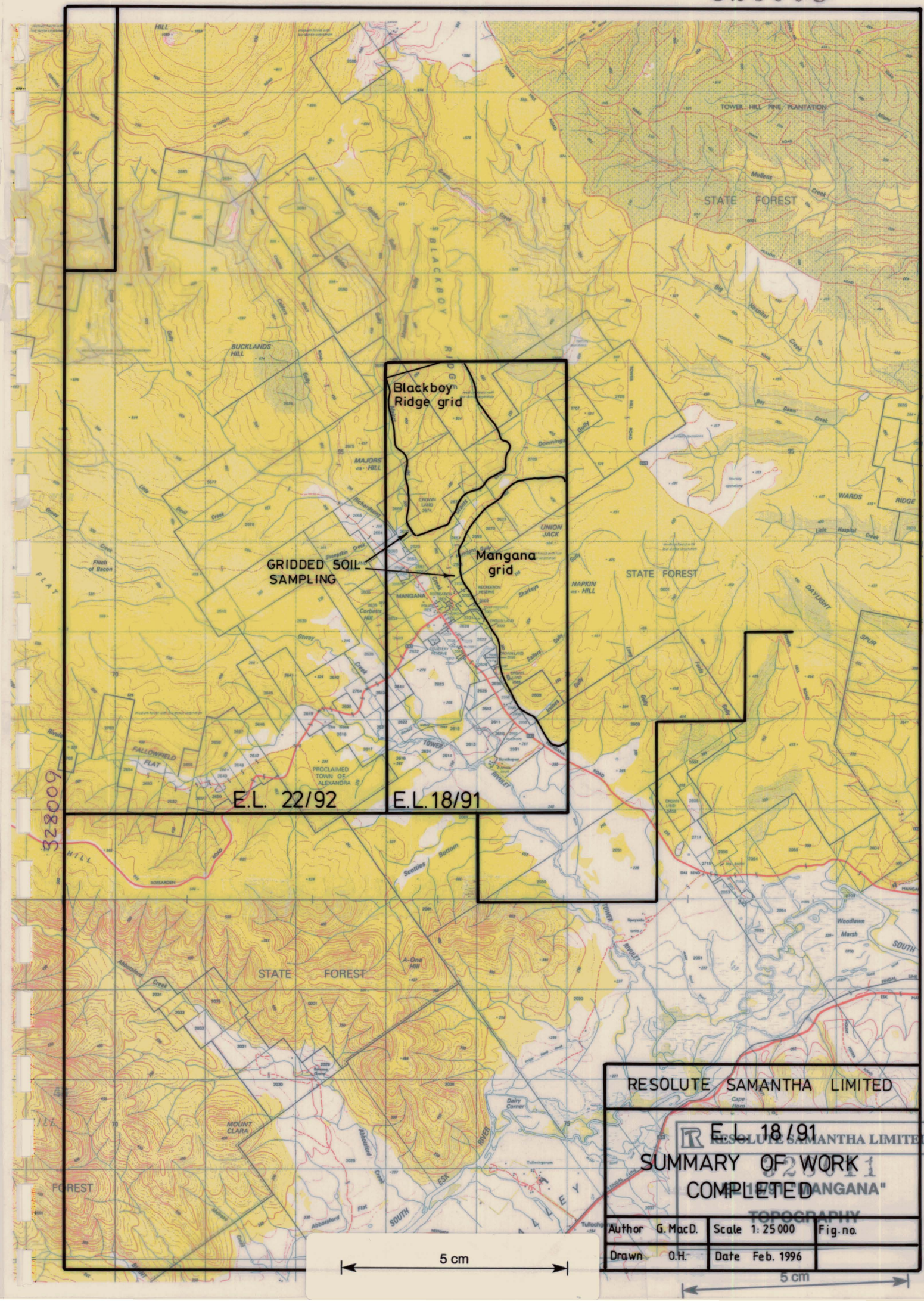

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RESOLUTE SAMANTHA LIMITED

E.L. 18/91

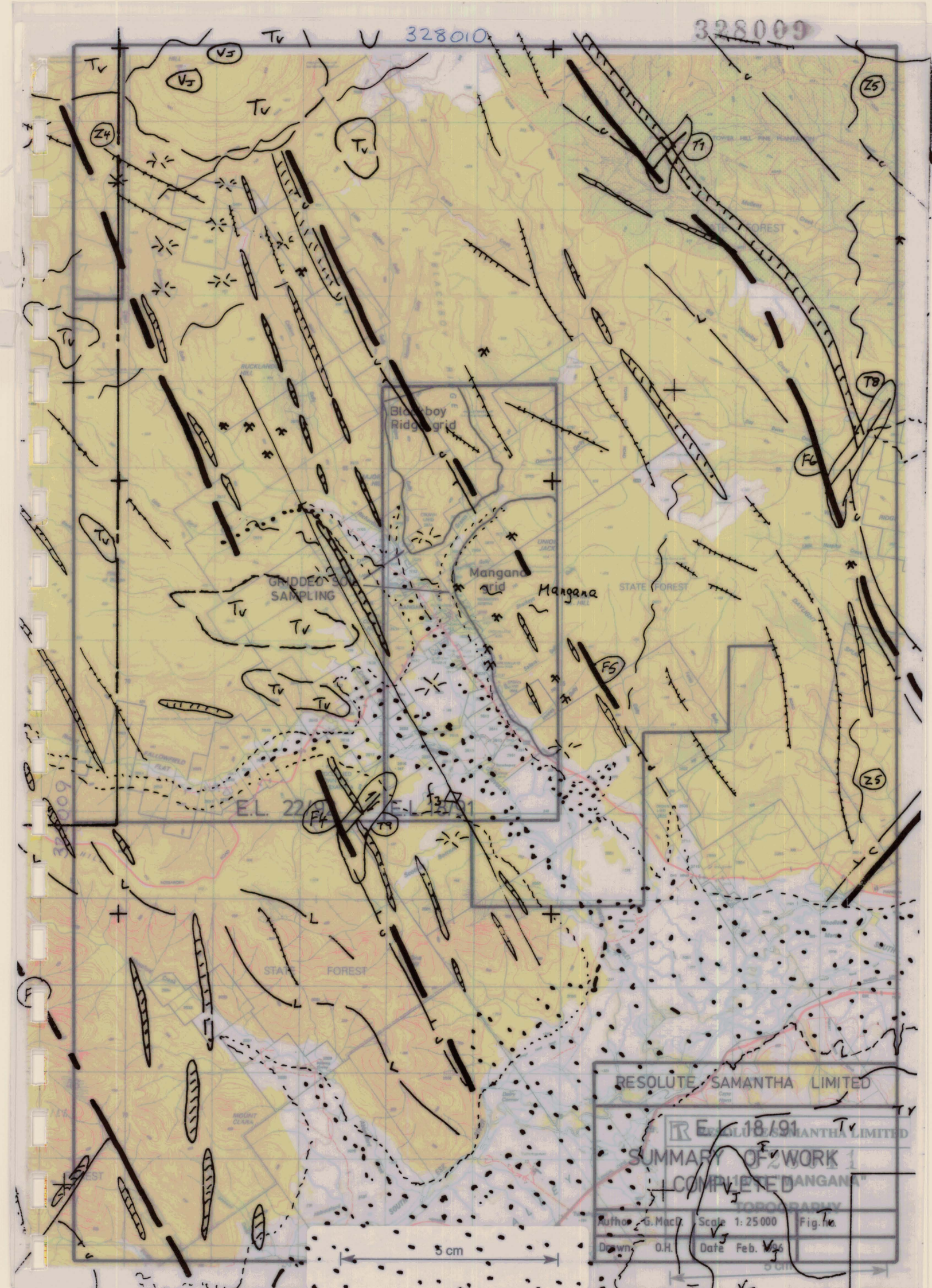
SUMMARY OF WORK COMPLETED

"MANGANA"

TOPOGRAPHY

Author G. MacD.		Scale 1: 25 000	Fig. no.
Drawn O.H.		Date Feb. 1996	

5 cm


328010
328009
Tv
VJ
Z4
Z5
T1
T8
F6
F5
F4
T9
F3
F
Blackboy Ridge grid
Mangana grid
Mangana
GRIDDED SOIL SAMPLING
STATE FOREST
E.L. 22/91
E.L. 18/91
RESOLUTE SAMANTHA LIMITED
SUMMARY OF WORK COMPLETED
TOPOGRAPHY
Author G. MacD.
Scale 1: 25 000
Fig. No.
Drawn O.H.
Date Feb. 1996
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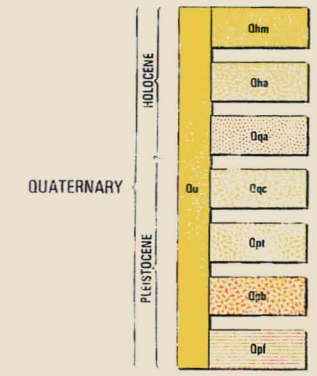
REFERENCE



Mine tailings and man-disturbed ground.

Stream alluvium and swamp deposits.

Older alluvium of river terraces; predominantly dolerite-derived (Qqad).

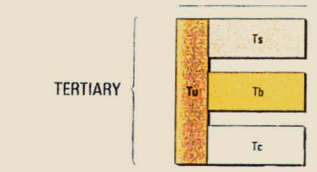
Colluvium — clayey quartz-granule gravel derived from granitic rocks (Qqcg); clayey gravel derived from dolerite (Qqcd); sand derived from Upper Parmeener rocks (Qqcq).

Talus, scree and rare till (moraine ridges indicated • • • • •) consisting of dolerite (Qptd); talus — dolerite and subordinate Upper Parmeener rocks (Qpt), dominantly Upper Parmeener quartz sandstone (Qptq), dominantly Lower Parmeener rocks (Qptp), dominantly granitic rocks (Qptg).

Dolerite block fields, probably underlain by clay from weathered dolerite; with interstitial fines (Qpbs), without interstitial fines (Qpbb).

Toppled dolerite masses (> 100m), coherent or partly disaggregated, produced by cliff failure.

Erosional surface.

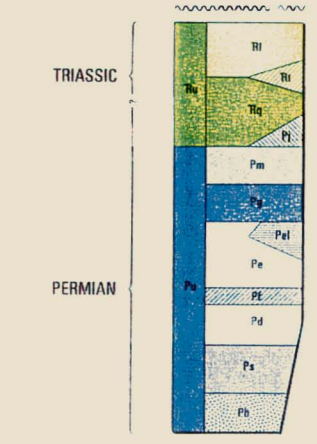


Quartz sand and gravel.

Basalt.

Carbonaceous grey clay, gravel including dolerite boulder beds, and minor conglomerate and lithic sandstone. Only recorded in boreholes in upper South Esk (EP820960) and Henbury (EP660790) areas.

Low-angle unconformity.



Dominantly lithic sandstone with minor mudstone and coal (Rl); in places with minor pebbly layers and conglomerate composed of extrabasinal clasts (Rlc); dominantly mudstone (Rlm).

Quartz-rich lithic sandstone and minor quartz sandstone (Rt); with mudstone and carbonaceous mudstone (Rtm).

Cross-bedded quartz sandstone. (Rq)

Fine-grained, slightly feldspathic quartz sandstone, micaceous shale, and minor carbonaceous mudstone.

Poorly sorted grey mudstone, siltstone and rare sandstone, unfossiliferous except for rare forams. Bed of pebbly sandstone about 1m thick indicated (Pmp). (Pm: Prospect Creek Mudstone).

Thick-bedded, usually poorly sorted, pebbly sandstone passing up into interbedded sandstone, siltstone and mudstone. Marine fossils abundant in places. (Pg: Mistletoe Sandstone).

Marine fossiliferous mudstone, siltstone and minor sandstone and bioclastic limestone (Pe); dominantly bioclastic limestone (Pel: Burnt Gully Limestone.)

Fine-grained pebbly sandstone with phosphatic nodules. Marine fossils present in some areas. Unit about 2m thick. Indicated by line (——) in places. (Pf: Fonthill Sandstone Member).

Mudstone, siltstone and minor poorly sorted sandstone. Uncommon marine fossils. (Pe, Pf, Pd: Castle Carey Mudstone).

Dominantly fine-grained, well sorted quartz sandstone, commonly with interbedded and inter-laminated carbonaceous shale, lesser conglomerate and rare coal (Ps); dominantly very coarse-grained arkosic sandstone and granule conglomerate (Psc). (Ps: Aberfoyle Formation).

Poorly sorted pebbly mudstone, sandstone and minor conglomerate, marine fossils present in places (Pb); dominantly conglomerate (Pbc). (Pb, Pbc: Strickland Gorge Formation).

Areas of partly silicified Lower Parmeener rocks indicated by overprint (▭).

LOWER PARMEENER SUPERGROUP
UPPER PARMEENER SUPERGROUP
TAMARIAN STAGE
BERRIACHIAN STAGE
LYMINGTONIAN STAGE
REKUNIAN SERIES

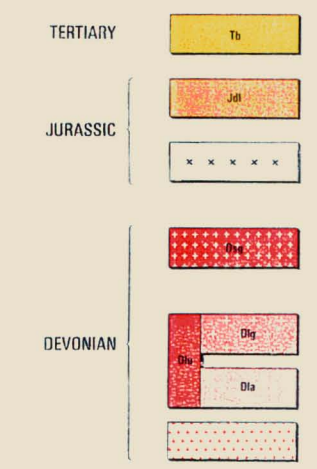
Angular unconformity.

Quartzwacke turbidite sequence of interbedded sandstone, siltstone and mudstone (SDu): dominantly sandstone and siltstone (SDs); dominantly mudstone and siltstone (SDp).

Psammite (SDsm) and spotted pelite (SDpm) contact metamorphosed by granitic intrusions indicated by overprint (▭).

MATHINNA BEDS

IGNEOUS ROCKS



Basalt.

Dolerite — grain size < 0.2mm (vf), 0.2-0.7mm (f), 0.7-1.5mm (m) and >1.5mm (c) indicated; with orthopyroxene (o), with abundant poorly crystalline mesostasis (e), with intersertal black glass (g). Areas with later very fine-grained dykes shown (d).

Contact metamorphism indicated by overprint.

GRANITIC INTRUSIONS

SCOTTSDALE BATHOLITH

Biotite-hornblende granodiorite.

BEN LOMOND GRANITE

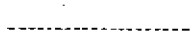
Porphyritic fine- to medium-grained alkali feldspar granite/granite with quartz and variable amounts of K-feldspar phenocrysts.

Equigranular to porphyritic alkali-feldspar granite/granite with variable amounts of K-feldspar phenocrysts (Dla); fine- to medium-grained (Dlaf), coarse-grained (Dlac); areas of surficial pink weathering of K-feldspars indicated by overprint (▭).

Contact metamorphism indicated by overprint. Greisen (G), hydrothermal alteration (H) indicated.

Some areas where rocks units inferred from float indicated, (e.g. SDs', Pm', Jdl').

Geological boundary-position approximate.


Geological boundary-inferred.

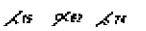
Geological boundary-transitional.

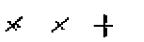
Airphoto lineament.

Fault — position approximate, downthrown side indicated


Fault — inferred.

Fault — concealed.


Strike and dip of beds — right way up, overturned, facing unknown.


Vertical bedding, facing known, facing unknown; horizontal bedding, right way up.

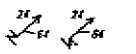

Generalised palaeocurrent direction.

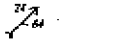

Strike and dip of primary cleavage, vertical.


Strike and dip of later cleavage, vertical


Direction and plunge of minor fold hinge line, with direction of dip of axial surface.

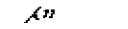

Vergence (viewed down plunge)-dextral, no vergence, sinistral.


Direction and plunge of kink-band hinge line, with direction of dip of axial surface,-end sense of displacement viewed down plunge.


Direction and plunge of chevron-fold hinge line,-with direction of dip of axial surface.


Plunge of columnar jointing, vertical.


Strike and dip of dominant joint set, vertical.

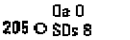

Strike and dip of foliation due to alignment of K-feldspar phenocrysts in granitic rock.


Trend of apparent lineation of K-feldspar phenocrysts on horizontal surfaces of granitic rock.

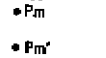

Trend of sulphide-bearing vein.

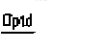
Macrofossil locality in poorly-fossiliferous sequences.

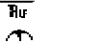
Field station for adjacent readings on map.



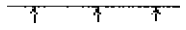
Borehole with identification number, depths in metres to rock types encountered, and final depth.


Notable small outcrop.


Notable float occurrence.


Talus concealing underlying rock type inferred from magnetometer survey.

Cirque.


Limit of glacial smoothing of dolerite bedrock.


Major mine — closed.

Mine — operating.

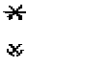
Mine abandoned.


Mine or prospect — little or no production.

(Sn — tin, W — wolfram, Pb — lead, Zn — zinc, Cu — copper, Ag — silver, U — uranium, C — coal) (Au — gold, Sn — tin)

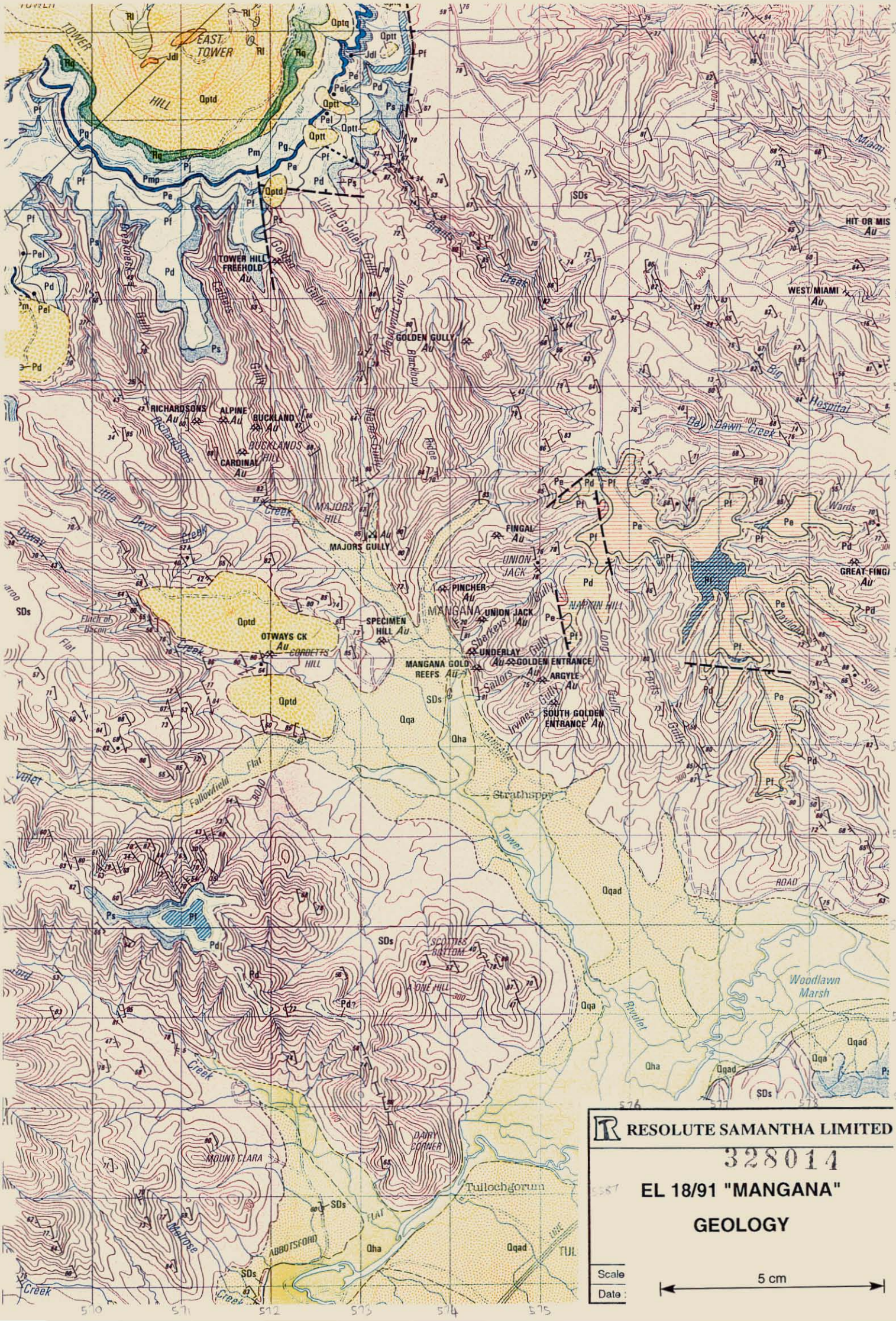

Alluvial workings — operating.


Alluvial workings — abandoned.


Quarry or pit — operating.

Quarry or pit — abandoned.

(Gr — gravel, Bs — building stone)



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EL 18/91 "MANGANA"

GEOLOGY

Scale

Date :

5 cm

This folding and/or thrust faulting is interpreted to have taken place in the Mid Devonian in an event correlated with the Tabberabberan Orogeny (McClenaghan, 1994).

To a large degree granitoid intrusion post-dated this deformation phase as evidenced by the truncation of folds in the Mathinna beds by these granites though some deformation is noted in granitoids and adjacent Mathinna beds (Goscombe and Findlay, 1989).

The Mid Devonian deformation has produced an "approximate fold axial planar penetrative cleavage (S) which is the predominant structural surface present throughout the whole of NE Tasmania" (Goscombe and Findlay, 1989). This cleavage is generally steeply dipping.

Both outcrop and mega-scale kink bands recognisable throughout the north-east are interpreted to post-date granitoid intrusion. They are interpreted to have been produced by a north-north-west trending principal stress regime (Goscombe and Findlay, 1989).

Mineralisation

Gold bearing quartz veins are considered to have formed in the Middle Devonian (Taheri and Bottrill, 1994), however, there is some uncertainty as to the role of the granitoids in gold mineralisation.

Gold mineralisation at both Lisle and Golden Ridge, elsewhere in the north-east, lies in Mathinna beds in the thermal metamorphic aureole of granodiorites and appears to be genetically related (Klominsky and Groves, 1970), however, this spatial relationship does not hold so well in the Mangana area where the interpretation of aeromagnetic data suggests that Mangana is underlain by granodiorite (Leaman, 1989) or granite (Richardson and Roach, 1994) at a depth of not less than 2 kms.

Recent detailed geochemical work by Taheri and Bottrill (1994) on veining on the Mangana - Forester part of the lineament suggests that most gold bearing quartz veins were probably formed by "deep seated metamorphic fluid, probably resulting from devolatilisation of metamorphic rocks at depth (though) deeply convecting chemically-modified meteoric fluids may also have played an important role".

A number of generations of quartz veining are noted and although paragenetic relations have been interpreted (Goscombe and Findlay, 1989 and Taheri and Bottrill, 1994) "detailed relationships are complex and ambiguous" (Taheri and Bottrill, 1994).

3.3 Mangana Geology

The geology of EL 18/91 is described in considerable detail by Manzi (1995). Manzi's (1995) conclusions are reproduced here:-

"10.2 SUMMARY AND CONCLUSIONS

Based on geology, structural mapping, magnetic properties; petrological, EPR, and IC analyses; and sulphur and oxygen isotopes, the following conclusions are drawn for the Mangana district:

- The Lower Palaeozoic Mathinna Group of northeast Tasmania consists of a minimum thickness of 300m of fine-grained, thin-bedded, deep water turbidites in the Mangana area. Three main sedimentary associations are recognised; (1) mudstone facies, (2) sandstone facies and (3) mixed facies. No obvious marker horizons occur in the Mangana district.
- The sedimentary rocks at Mangana are tentatively correlated to the Siluro-Devonian Bellingham Formation on the basis of facies characteristics.
- Correlations exist between age and illite crystallinity within the Mathinna Group (Taylor, 1992); the Mangana IC values (0.26 -0.29° 2θ) suggest a Silurian age, which supports a correlation with the Bellingham Formation. The IC values indicate an anchizone metamorphic grade for the Mathinna Group rocks. Higher metamorphic grades are recognised in areas of mineralisation, implying hotter fluids upwelling along structures.
- Homogenous IC values from across the Mangana lodes suggest that no major stratigraphic discontinuity exists across the lodes and hence no large scale vertical throw. The discontinuities detected during mapping probably represent minor vertical displacements along reactivated wrench faults.
- Four main deformation events are recognised in the Mangana district. The Mangana area consists a close zone of NW-trending folds (F_1) with a well-developed axial plane cleavage (S_1). These folds are correlated to the Tabberabberan Orogeny of eastern Australia. D_2 is characterised by mesoscopic short wavelength folds (F_2) and a spaced zonal crenulation cleavage (S_2). These features are associated with NW-trending dextral wrench faults (D_2) which show reactivation as reverse dip-slip faults (D_3). The D_4 deformational event is characterised by ENE-trending dextral shears and metre-scale kinking which can be correlated to regional Mathinna Group kinking of Middle Carboniferous age (Goscombe and Findlay, 1989). D_4 structures offset D_2/D_3 structures and F_1 folds.
- Gold mineralisation is hosted in slates and sandstones of the mixed and mudstone facies, and is associated with D_2/D_3 faults which occur close to, or on the western limbs of F_1 anticlines. The main mineralised quartz veins are sub-parallel to fault planes and may be laterally extensive (up to 1.5km long).

- Three broad generations of quartz ± carbonate ± sulphide veins have been identified in the Mangana district. Typical vein textures associated with gold mineralisation include ribbon, coxcomb, breccia, and buck veins with gold grades between 0.51 - 0.01 ppm. Such textures are characteristic of Slate Belt gold deposits.
- Widespread carbonate wallrock alteration in the Mangana goldfield is characterised by Mg-rich siderite porphyroblasts, which are not associated with any particular vein set. High intensity zones of siderite alteration occur in areas of known or inferred faulting and mineralisation. The mapping of siderite alteration zones may be an effective exploration tool for gold exploration in the Mangana district.
- Electron paramagnetic resonance (EPR) on quartz veins from Mangana appears to differentiate between vein morphologies, with ladder veins exhibiting flattish EPR spectra and coxcomb veins showing typically stronger EPR responses.
- The Mangana quartz veins are weakly paramagnetic, with the exception of a single quartz carbonate vein; the paramagnetism for this vein is attributed to an undeformed euhedral state.
- The positive correlation between gold content and strong EPR signals noted by Van Moort and Russell (1987) for vein quartz in Tasmania is not reflected in the responses of the Mangana quartz veins. However, unlike the latter study, no veins with Au >0.2 ppm were analysed.
- The observed EPR signals were probably generated by the presence of impurities within the quartz crystal lattice, rather than the presence of gold. Such impurities are postulated to be associated with gold mineralisation and hence provide a correlation between gold and EPR responses. This study indicates that visible inclusions such as sericite within quartz may cause the EPR response attributed to lattice impurities.
- Detailed ground magnetics over the Mangana lodes identified the presence of one high amplitude anomaly which corresponds to subtle NNW-trending features in regional aeromagnetics.
- Low susceptibility differences between sandy and silty units (0.0003 SI), as well as the interbedded nature of sediments, indicates magnetic techniques are unable to characterise the Mangana lodes, and that the source of magnetic anomalies are not generated by susceptibility contrasts between lithologies (altered and unaltered).
- Mineralising fluids from the Mangana system are H_2O-CO_2 (CH_4)-rich, have low salinities, temperatures of formation between 250°C to 300°C, heavy oxygen isotopes (9 - 10‰) and sulphur isotopes (5.4 - 13.6‰). Based on all these characteristics the most likely fluid reservoir for Mangana system is a mixture of deep metamorphic waters and connate fluids derived from reduced Devonian seawater."

The author has no reason to dispute any of these conclusions except perhaps for the structural interpretations.

Work conducted elsewhere in the Mathinna - Mangana area suggests that there was an earlier phase of mineralisation associated with the D1 event which produced the north-north-west trending folds. Evidence for the role played by this mineralising event in EL 18/91 is equivocal. The model envisaged is essentially that of Cox et al (1991).

Under this model auriferous quartz reefs would form in dilatational zones either parallel to bedding planes on the crests of anticlinal hinges, or in high angle reverse faults. This deformation would have occurred under a principle stress regime striking roughly 060° - 240°.

No evidence for this event elsewhere in the Mathinna-Mangana area comes principally from the "Zone of Close Folding" at Mathinna which runs through the new Eldorado, Miner's Dream, Horseshoe and Jubilee mines and in which mineralisation has apparently formed syn folding in dilatational sites on fold hinges or parasitic folds. Reefs in these cases are associated with tensional veins which have opened perpendicular to the strike of folding/reefing ie in the principal stress orientation 060° - 240° TN.

In the Mangana area a significant proportion of veins in the walls to mined reefs have a similar orientation ie striking 060° - 240° TN, (see Figures 4 - 7), however, it is still equivocal as to whether the reefs formed at the same time as these tension veins.

Manzi's (1995) series of structural cross - sections show high angle reverse faults (direction of faulting should be reversed - R Keele per comm) coincident with the Mangana Gold Reefs and Argyle-Golden Entrance Reefs but refers to this faulting as her D3 phase, post mineralisation.

This timing of reverse movement is based largely on the work by Keele (1994). Keele (1994) bases his relative timing of fault movements on somewhat equivocal evidence from only a few locations (eg Miami West).

Slickensides on reefs at Mangana record both subhorizontal and subvertical movements.

The alternative model to this is that each of R Findlay in Taheri (1992) who argues that reefs in the Mathinna - Dans Rivulet - Alberton part of the lineament formed in "extensional jogs in a dextral wrench system" and thus under a north-south principle compressive stress regime. In this model, "gold lodes pick out what may be interpreted as a Riedel shear pattern related to such faulting". This model draws from the work by Threader (1967).

In Findlay's model, the Mangana reefs would occupy the D shear position. A dextral (or sinistral) wrench model better explains the subvertical nature of ore shoots. There is also further evidence for such a model in the Mathinna area in the north-north-west striking sheeted veins.

Perhaps the only conclusion to be drawn is that more work needs to be done to resolve the role of the two models in controlling mineralisation in EL 18/91 but that at this stage there is a strong possibility that the main reefs at Mangana formed in high angle reverse faults under a 060° - 240° principle compressive stress regime.

4.0 EXPLORATION PHILOSOPHY

Summary reports on historical gold mining in the north-east have stressed the generally shallow depths at which mining ceased with reasons generally cited as falling grades, pinching reefs etc. A notable exception to this is the New Golden Gate which was payable to a depth of 600 metres.

It is significant to note that the New Golden Gate was one of the few gold mines to use cyanidation to extract refractory gold.

It is considered that the shallow nature of mining in the Mangana area is an artefact of the mining and/or metallurgical processes available at the time. Known reefs may continue at depth or undiscovered subcropping reefs may exist.

Initial reconnaissance work indicated the existence in the Mathinna area of sets of narrow sheeted veins in outcrop and old workings which may not have been sufficiently rich enough for early miners but which may prove economic using modern mining techniques. Stockwork veining in siltstone reported from Mangana may also be amendable to open cut mining.

It was concluded that outcropping or sub-cropping mineralisation in either narrow high grade reefs or broader sheeted vein sets/stockworks should have a geochemical signature.

Priority was placed on locating such a shallow deposit amenable to open cut mining before money was committed to deeper diamond drilling of the more problematic high grade reef targets under old workings.

5.0 PREVIOUS EXPLORATION

The Mangana goldfields has seen two phases of exploration. The relatively intense earlier phase commenced in the second half of last century and continued to the early part of this century. This work was carried out by prospectors alone or in groups utilising the techniques of panning, loaming and dollying with sub surface information provided by adits and shafts. All gold deposits in the north-east were found in this phase using these techniques.

This early phase is well summarised in early government reporting by Montgomery (1894), Twelvetrees (1907) and Blake (1939). The best summaries are those of Bottrill (1992), McOnie (1983) and Newnham (1992), though in the authors experience a considerable amount of further detail, sometimes geologically relevant, may be found by systematically searching through the early copies of the "Examiner" newspaper.

The second modern phase is that which has taken place in the second phase of this century. In contrast to the first phase, this second phase has been generally sporadic and poorly focussed and has not resulted in the discovery of any gold deposits. All significant previous exploration in the Mangana area is included in Section 5.0 "Review of Previous Work: Alberton-Mangana Zone" in Newnham (1992). That comprehensive summary is presented as Appendix A.

6.0 WORK CONDUCTED

6.1 Introduction

The major initial tools used in exploration at Mangana were gridded soil sampling, with low detection assaying for gold and arsenic, and the geological mapping of old workings.

Soil sampling was chosen as the Mangana area has seen no soil sampling survey. As stated previously, company sized deposits should have a soil geochemical response.

Locations of gridded and soil sampled areas are shown on the overlay to Figure 2.

Somewhat limited geological mapping was conducted due to prioritisation of work on other tenements.

6.2 Historical Research

Prior to the commencement of fieldwork time was spent locating and studying the available data on the early mining activities in this area as well as more modern exploration.

This work was aided by a number of excellent company compilations, namely Newnham (1992) "Review of Previous Exploration Information (for) Exploration Licences 22/92 and 23/92" for Newcrest and McOnie (1983) "A Review of the gold potential of north eastern Tasmania" for Goldfields Exploration as well as the government reports generated as part of NETGOLD initiative, namely Bottrill (1992) "The Mangana goldfield (and adjacent gold mining areas)."

These compilations are all largely text with relatively few large scale maps and no small scale maps.

A number of the old government reports sourced in their compilations contain quite detailed small scale maps of the old workings. Most of these, in addition to a number of old mine plans of variable quality and level of detail, are available in larger scale format in the Mine Department's archives. The maps accompanying Blake (1939) are particularly useful for the Mangana goldfield (see Figures 9, 10, 14 and 15).

The best map(s) for each old working were copied and all relevant data from the reports of both old mining activities and modern exploration were compiled onto those. These maps served as the basis for later work, particularly adit mapping and the positioning of soil sampling grids.

The essential compilation plans for Mangana are presented as Figures 9 to 15.

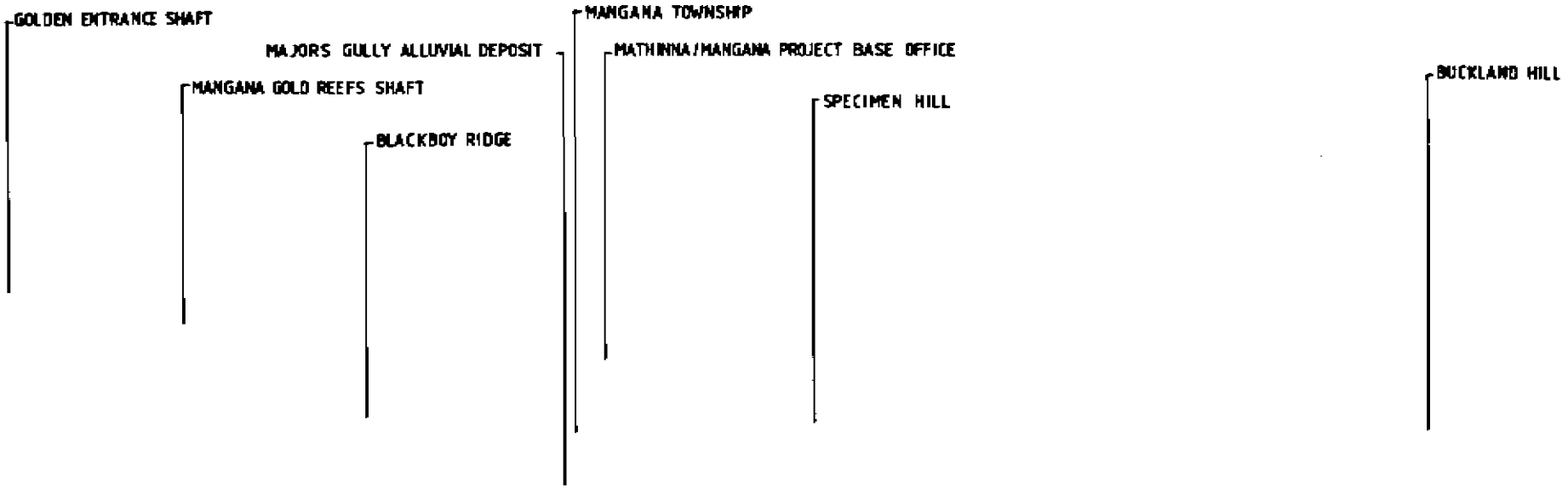
GOLDEN ENTRANCE SHAFT
MANGANA TOWNSHIP
MAJORS GULLY ALLUVIAL DEPOSIT
MATHINNA/MANGANA PROJECT BASE OFFICE
BUCKLAND HILL
MANGANA GOLD REEFS SHAFT
SPECIMEN HILL
BLACKBOY RIDGE

Plate 1 **EL 18/91 "Mangana" - looking South-South-East from East Tower Lookout**

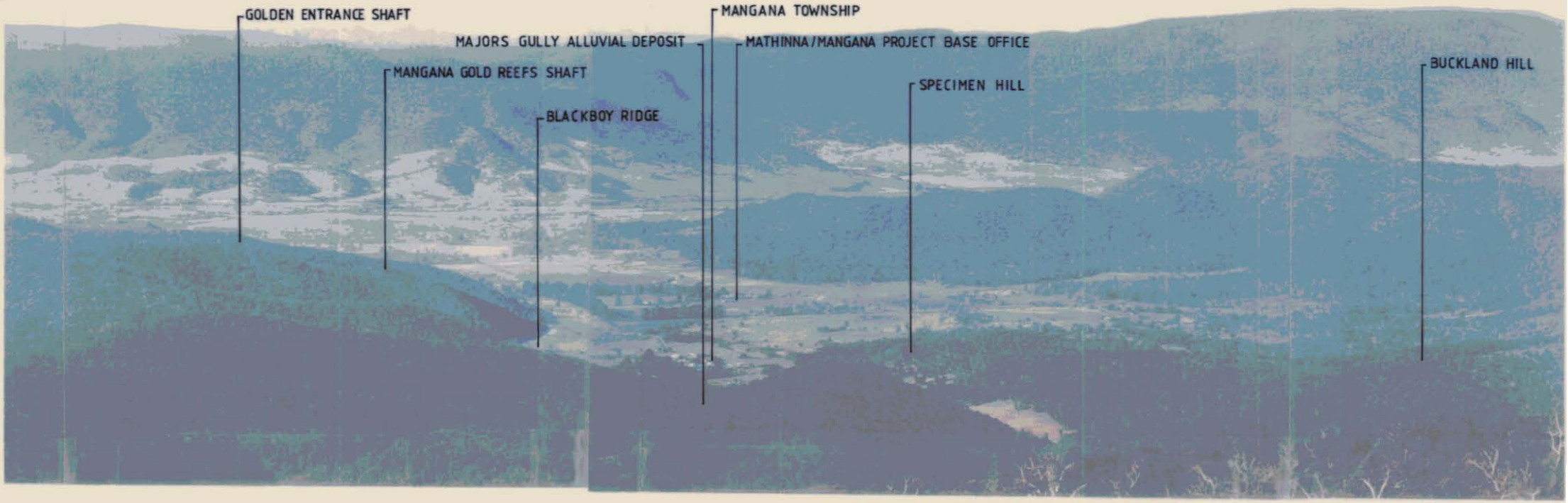

Plate 1 **EL 18/91 "Mangana" - looking South-South-East from East Tower Lookout**

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6.3 Gridded Soil Sampling

Gridded soil sampling was conducted over 75% of the area of old workings at Mangana. Areas gridded and sampled are shown on Figure 2.
At Mangana, the gridded areas east of the Township (over the Golden Entrance, Mangana Gold Reefs and Fingal mines) and on Buckland Hill were chosen as having the greatest potential due to the strike length and/or grade of reefs in this area. Blackboys Ridge was chosen due to its position adjacent to the Majors Gully alluvials and its position both south along strike from the Golden Gully workings and north along strike from the Fingal and Pincher Reefs.

The Specimen Hill area immediately west of the Mangana township was due to be gridded, however, prioritisation of work elsewhere saw this work shelved.

All grids have baselines professionally surveyed (by Hamilton Surveys, Bicheno) with baselines tied to AMG through State control. Wooden survey stakes were placed every 50 metres with short star pickets driven into the ground (and protruding around 5 cm) every 200m. Andrew Hamilton (pers. comm.) asked that verification surveys connecting the loose ends of base lines be carried out to round off any errors however, the accuracy is more than sufficient for this type of work.

A total of 6.8 kms of baseline were surveyed at Mangana (consisting of 3.9 kms in EL 18/91 and 2.9 kms in EL 22/92).

Baselines at Mangana were surveyed at 339.70° AMG north orientated so that wing lines would be perpendicular to the dominant strike of significant mineralisation which is fairly consistently north-north-west at Mangana. The grid coordinate system used at Mangana is shown on Figures 16 and 17.

Surveying of base lines took place in October to December 1994.

Soil sampling was carried out by a team of up to 10 field assistants working in pairs.

An initial sample spacing of 50 m on 100 m spaced wing lines was chosen as optimal given target size requirements. Infill sampling on 100 m x 25 m was carried out in a few anomalous areas defined in the 100 m x 50 m sampling.

Sample locations on wing lines were measured using a polychain and suunto compass and clinometer with slope corrections for distance made in the field.

After removing surface litter each soil sample was taken from the shallow B-horizon (top 15 cm of soil) using a shovel or mattock.

Soil samples were sieved on site through 2 mm sieves and a sample of nominally 1 kg taken. Sieving was made possible by the dry conditions in October to December 1994. Sample sites were marked with plastic pin markers.

Assaying was contracted to Minlab in Perth WA. All samples were assayed for gold and arsenic. Gold analysis was by fire assay - AAS on a 50 g charge with a detection limit of 1 ppb whilst arsenic was analysed by perchloric acid digest - AAS with a detection limit of 10 ppm.


BUCKLANDS HILL
TOWER HILL
MAJORS GULLY
BLACKBOY RIDGE
MANGANA GOLD REEFS
GOLDEN ENTRANCE
MATHINNA / MANGANA
PROJECT BASE OFFICE

328024a

Plate 2 **EL 18/91 "Mangana" - Looking North from Base Camp Office**

Plate 2 **EL 18/91 "Mangana" - Looking North from Base Camp Office**

A total of 843 shallow B-horizon soil samples were taken on the 100 m x 50 m grid in EL 18/91. Forty eight of these were taken from 1479 P/M and 73 from 24 M/93 (see Figure 16).

In addition, 12 infill soil samples were taken on 25 m spacings with five of these from 24 M/93 (see Figure 16).

Soil sample record sheets and assay results are included as Appendix B with Sample locations on Figure 16 and Au and As results on Figure 17.

6.4 Geological Mapping/Rock Sampling

Geological mapping and rock sampling was somewhat limited in EL 18/91 due to prioritisation of work on other tenements. This prioritisation was based largely on the generally poorer soil geochemical results then obtained from similar work in the Mathinna area.

No geological map was prepared for EL 18/91, however, a good quality fact map of much of the EL was prepared by an Honours student from the University of Tasmania, Bianca Manzi (1995), who studied the mineralisation of the Mangana area.

In spite of this lack of mapping, most underground workings were visited and inspected with rock sampling of some adits undertaken and some initial detailed outcrop mapping conducted.

A total of 64 rock samples were collected with two assayed for a suite of elements (Au, As, Ag, Sb, Cu, Pb, Zn, W, Fe and Mn) with all subsequent samples assayed for Au and As only. Rock sample locations descriptions and assay results are included as Appendix C.

Thirty-four of the rocks were taken from old workings (one was of float nearby), thirty-one were taken from a zone of stockworked siltstone to the immediate east of Majors Gully with the remaining sample taken from an apparent reef channel in the floor of Majors Gully.

6.5 Aeromagnetics Enhancement/Interpretation

In conjunction with exploration on adjacent ELs 26/94, 27/94 and 28/94, the newly acquired (Tas. Govt survey) aeromagnetic data was processed, enhanced and interpreted by John Ashley of Southern Geoscience Consultants in Perth, WA. His interpretation report is included as Appendix D with that part of the interpretation plan covering the Mangana area shown as an overlay to figure 3.

A set of slides showing the enhanced imagery used in this interpretative work has been lodged with Mineral Resources Tasmania. A list of those images is included as Appendix D.

6.6 Channel Samples

14.90 metres of channel sampling (14 samples) were taken in EL 18/91 with an electric pneumatic chipper with power provided by a generator.

10.90 metres of channel samples (11 samples) were taken from the No 4 (?) adit of the Mangana Gold Reefs with the locations shown on figures 6 and 10. A further 4.0 metres (3 samples) were taken from a zone of cross-cutting quartz veins in Fingal Gully. The location of these are shown in Figures 8 and 9, however, it lies just downstream from the 10000N, 10000E baseline peg in the bed of Grant's Creek.

Channel samples in the Mangana Gold Reefs No 4 (?) adit were taken to see if the narrow quartz veinlets, in a horse of slate between the two quartz reefs, could bulk up with the quartz reefs to form a lower grade but larger tonnage deposit amenable to open cutting. The No 4 adit was chosen as being probably the only adit in the field with a cross cut allowing access to sheeted veins.

The channels samples taken on the Fingal Gully served two purposes. Firstly the zone had potential to be a large tonnage, low grade deposit. Secondly the samples were taken to determine which of the two dominant orientations (if any) was gold bearing.

7.0 RESULTS

7.1 Historical Research

The main compilation plans and sections included in this report show both the persistence along strike of the Argyle - Golden Entrance - Fingal (?) reef and the shallow depths to which it was worked. Similarly the Mangana Gold Reefs reef was generally only worked to a shallow depth.

The shallowness of workings is a characteristic of old workings throughout the north-east with the notable exception being the New Golden Gate and Tasmania Reefs.

The New Golden Gate at Mathinna was worked to a depth of around 650 metres before grades were said to fall. The major difference between the New Golden Gate reef and workings at Mangana is that cyanidation, used to extract refractory gold at the New Golden Gate, was not used at any mine at Mangana. This is probably the reason behind the belief that secondary enrichment in the oxidised zone was necessary for mines to be payable.

Unfortunately no fresh sulphidic ore was found at Mangana to allow this to be tested though in the author's experience elsewhere in the north-east it can usually be shown that falling grades with depth are often at least partly due to inefficiencies in the metallurgical extraction of the gold from sulphide ore.

The other problem apparent from the historical research is the relatively short strike extent of gold shoots within reefs. These shoots may take the form of auriferous quartz within barren quartz or auriferous quartz within 'lode slates' or 'reef channels'. These shoots are usually subvertical as the section on the Mangana Gold Reefs shows. Although this is not so apparent in the Argyle - Golden Entrance section a number of other examples in the Mangana area outside EL 18/91 and the Mathinna area support this conclusion.

In the light of this knowledge an obvious drill target is apparent on the Mangana Gold Reefs section just beyond the end of the No 4 adit below the zone of stoping.

The other major point to come from the historical research was the generally narrow nature of the gold bearing reefs with widths less than 0.5 m almost the norm. The exception to this is the Mangana Gold Reefs however it is unclear whether all of its width was auriferous.

This last point is borne out by the geological mapping and sampling.

7.2 Gridded Soil Sampling

The results from the soil sampling were generally disappointing with only a few generally small and discrete contourable anomalies defined.

In particular the soil sampling, with possibly one exception, did not indicate the presence of parallel reefs, the strike extension of known reefs or the existence of significant gold rich shoots along the strike of known reefs.
Field checking revealed that a number of the anomalous values were either due to contamination by old workings or were reflecting known and previously mined out mineralisation.

Perhaps the most significant soil anomaly is that on Blackboys Ridge with a peak of 195 ppb Au and 570 ppm As at 10700 N, 9700 E. Field checking of this anomaly could not explain the anomaly with only minor amounts of quartz in float. The significance of this anomaly is raised by the results of the aeromagnetic interpretation discussed in the following section.

7.3 Geological Mapping/Rock Sampling

This section is intended principally to present the locations and results of geological (structural) mapping as well as rock and channel sample locations and assay results. The overall interpretation of this mapping is presented in section 3.3.

The 22 rock samples taken from the Argyle No 1 and No 2 adits (see Figure 4) serve to indicate the variability of grades in these quartz reefs with the main reef varying from 140.2 g/t Au to 0.10 g/t Au.

A similar conclusion can be drawn from the Golden Entrance Samples (see Figures 5 and 10) and Mangana Gold Reef samples (see Figures 6 and 10).

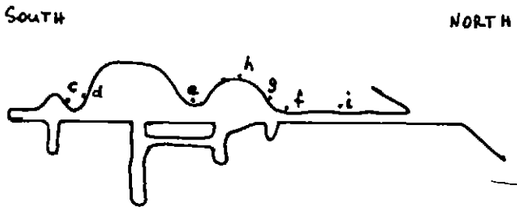
The other conclusion to be drawn from this mapping is the generally narrow width of these reefs with 0.5 m or less apparently the norm.

The structural data for the Fingal Gully Channel sampling and Pincher Adit mapping are presented as Figures 8 and 7 respectively. The other area which was extensively rock sampled was a zone of quartz stockworked siltstone between 10800 N and 11100 N (grid) and 9400 E and 9600 E on the side of Bucklands Hill immediately east of Majors Gully. A 1.52 g/t Au, 1.2% As sample was not supported by further sampling.

At the base of Major's Gully an excavator has exposed a puggy reef channel with considerably amounts of pyrite. Alluvial gravels immediately overlying this were relatively gold rich with the gold appearing "different" ie more metallic than other alluvial gold (A. White pers comm). The single sample taken did not support this.

Apart from the structural control on hard rock gold mineralisation, attention was also given to the source of the gold in alluvial deposits at Mangana and particularly Majors Gully. Old reporting suggests that some gold was apparently derived from the basal Permian conglomerates. Some attempts were made outside of EL 18/91 to resolve this source question albeit unsuccessfully.

This reef channel in Majors Gully if continuing along a north-north-east trend would be expected to pass through the lower part of Fern Tree Gully from which the bulk of the gold in Majors Gully is considered to have come.



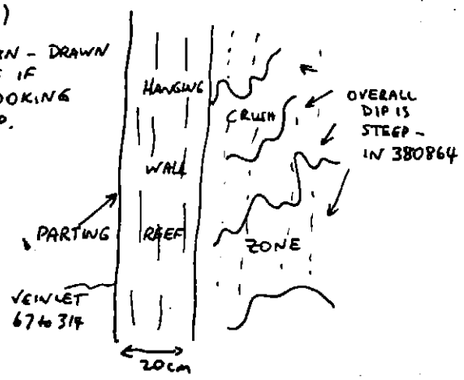
(a) N°1 SOUTH ADIT SECTION 1:1190

(b) PLAN 1:1190

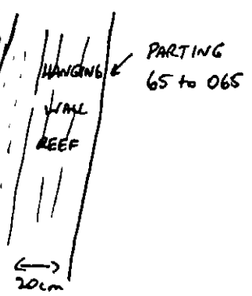
TN

(c)

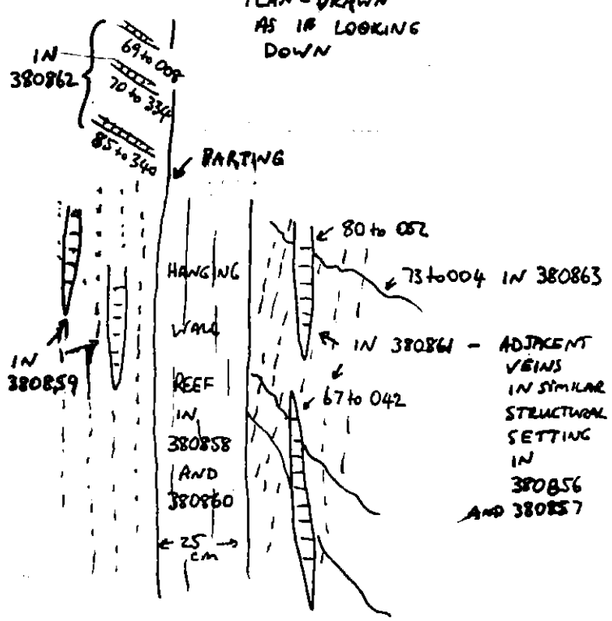
PLAN - DRAWN AS IF LOOKING UP.



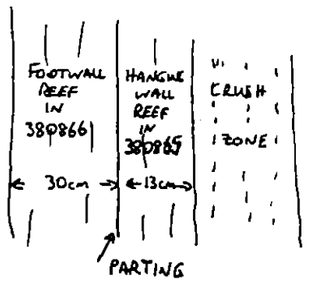
(d) FAULT 45 to 090 WITH VERTICAL SLICKS



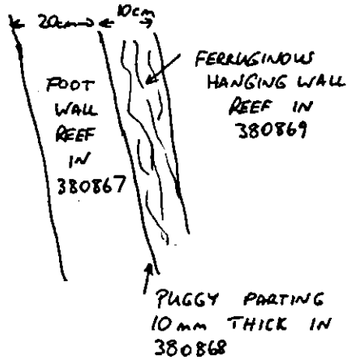
(e) PLAN - DRAWN AS IF LOOKING DOWN



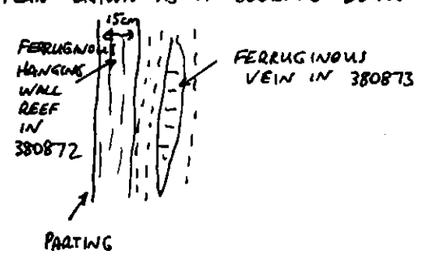
(f) PLAN - DRAWN AS IF LOOKING DOWN



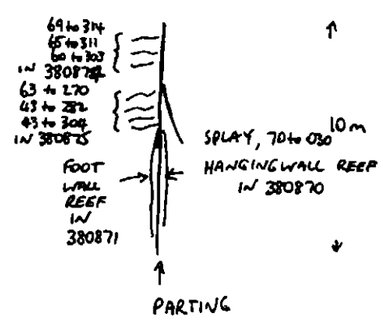
(g) LOOKING NORTH ALONG STRIKE



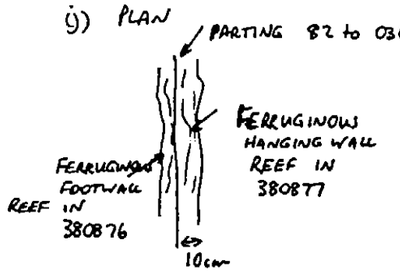
(h) PLAN DRAWN AS IF LOOKING DOWN

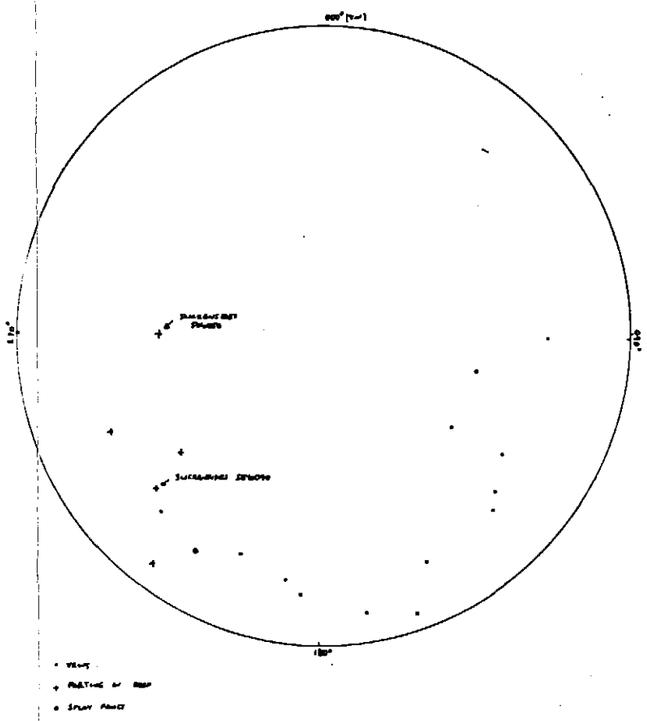


(i) PLAN



(j) PLAN





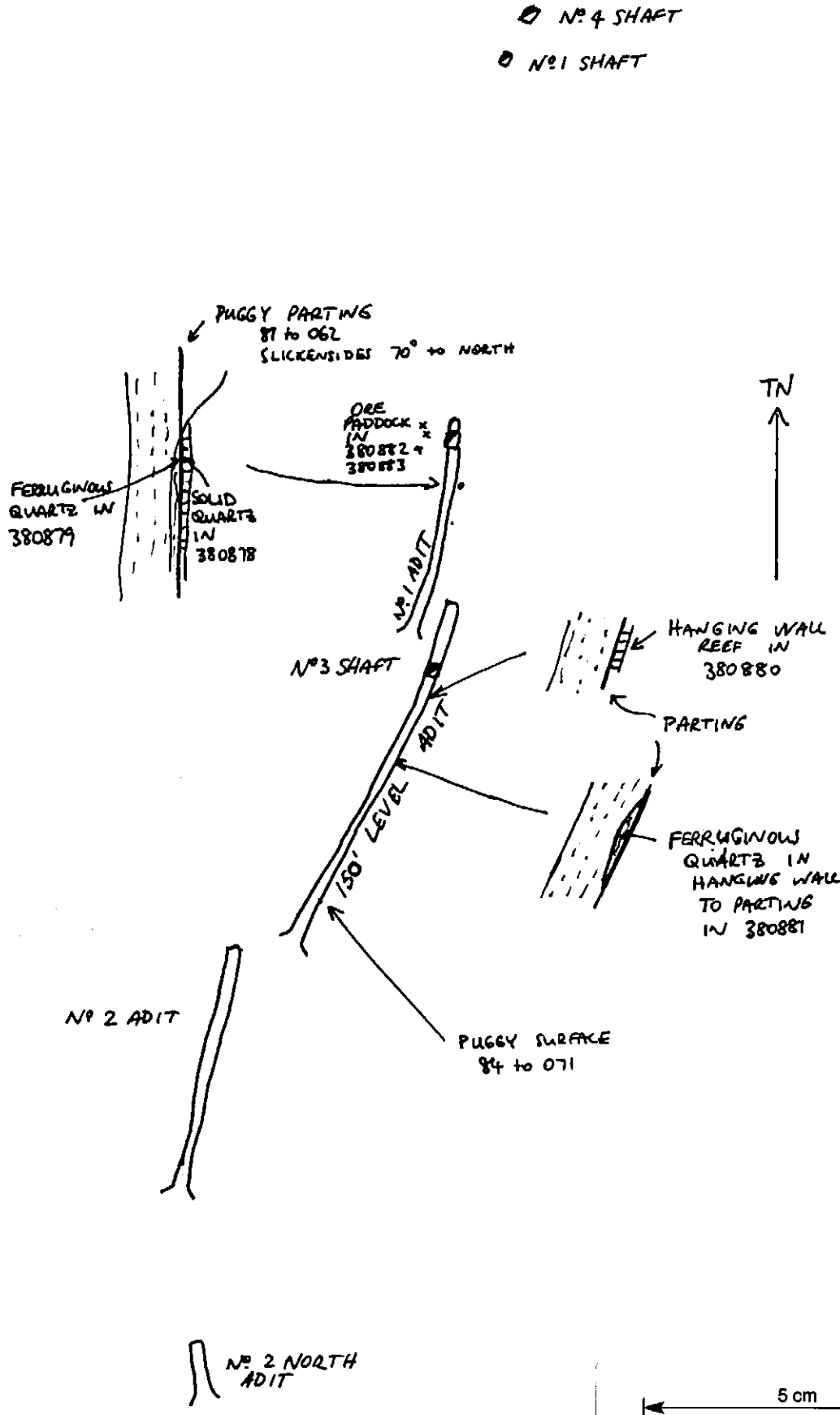
(k) POLES TO VEINS AND FAULTS.

5 cm

RESOLUTE SAMANTHA LIMITED

ARGYLE MINE
ROCK SAMPLE LOCATIONS AND STRUCTURES

Scale: AS SHOWN	
Date: FEB '96	FIGURE 4



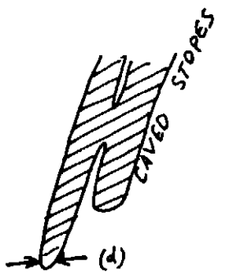
RESOLUTE SAMANTHA LIMITED

GOLDEN ENTRANCE MINE ROCK SAMPLE LOCATION AND STRUCTURES

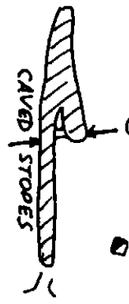
Scale :	1 : 1190	
Date :	FEB. '96	FIGURE 5

328031

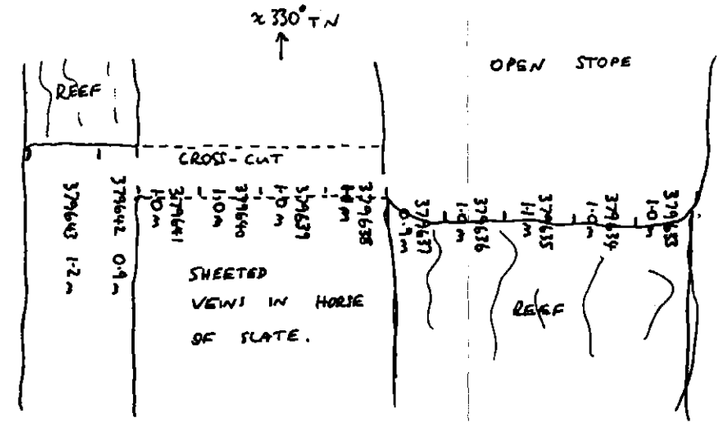
(a) PLAN
1:1190



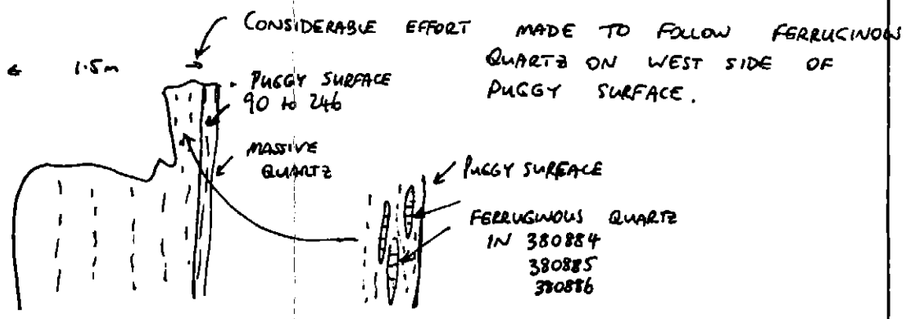
Nº 2 ADIT // CAVED STOPE



(b) CHANNEL SAMPLES



(c) LOOKING NORTH.



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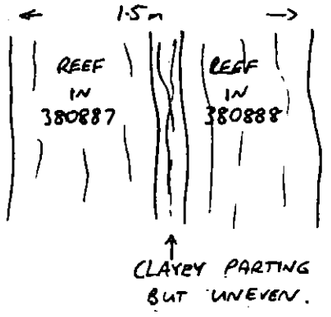


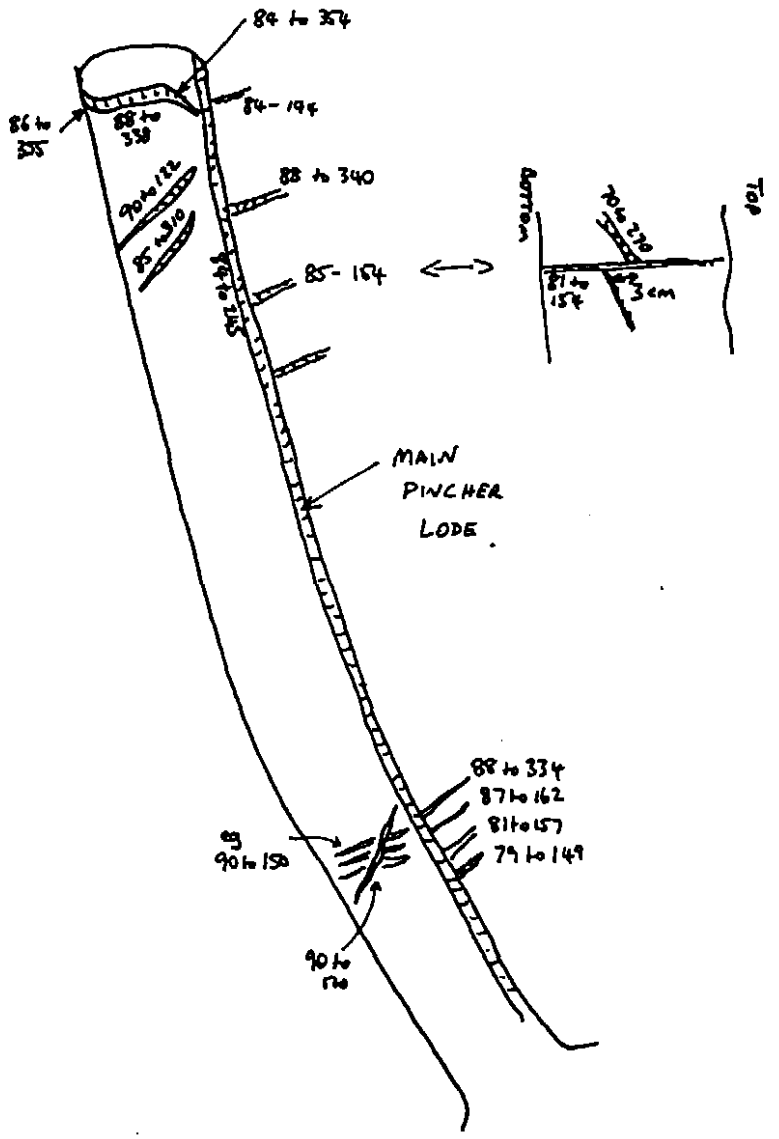
5 cm

RESOLUTE SAMANTHA LIMITED

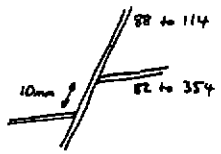
MANGANA GOLD REEFS MINE
ROCK AND CHANNEL SAMPLE LOCATIONS AND STRUCTURES

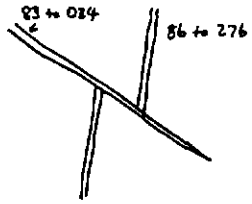
Scale: AS SHOWN	
Date: FEB. 96	FIGURE 6

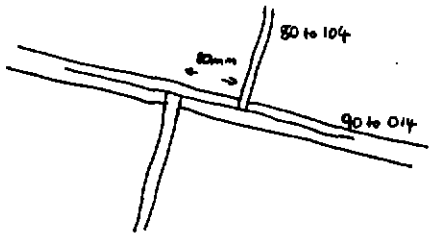
328032

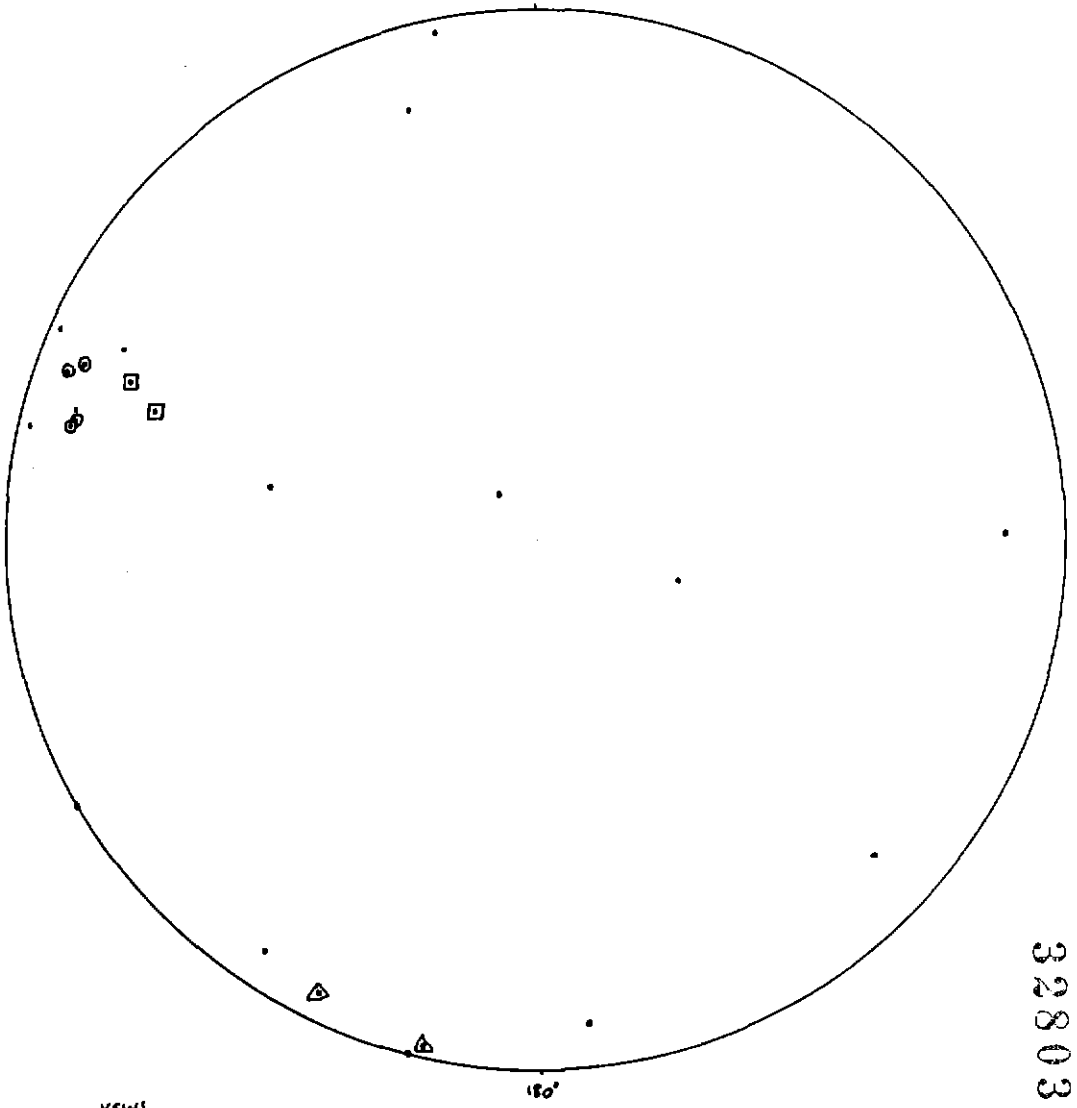


RESOLUTE SAMANTHA LIMITED	
PINCHER ADIT STRUCTURES	
Scale :	
Date : FEB. '96	FIGURE 7









VEINS
- ⊡ " " 379775
- ⊙ " " 379776 and 379777
- △ " " 379778

5 cm

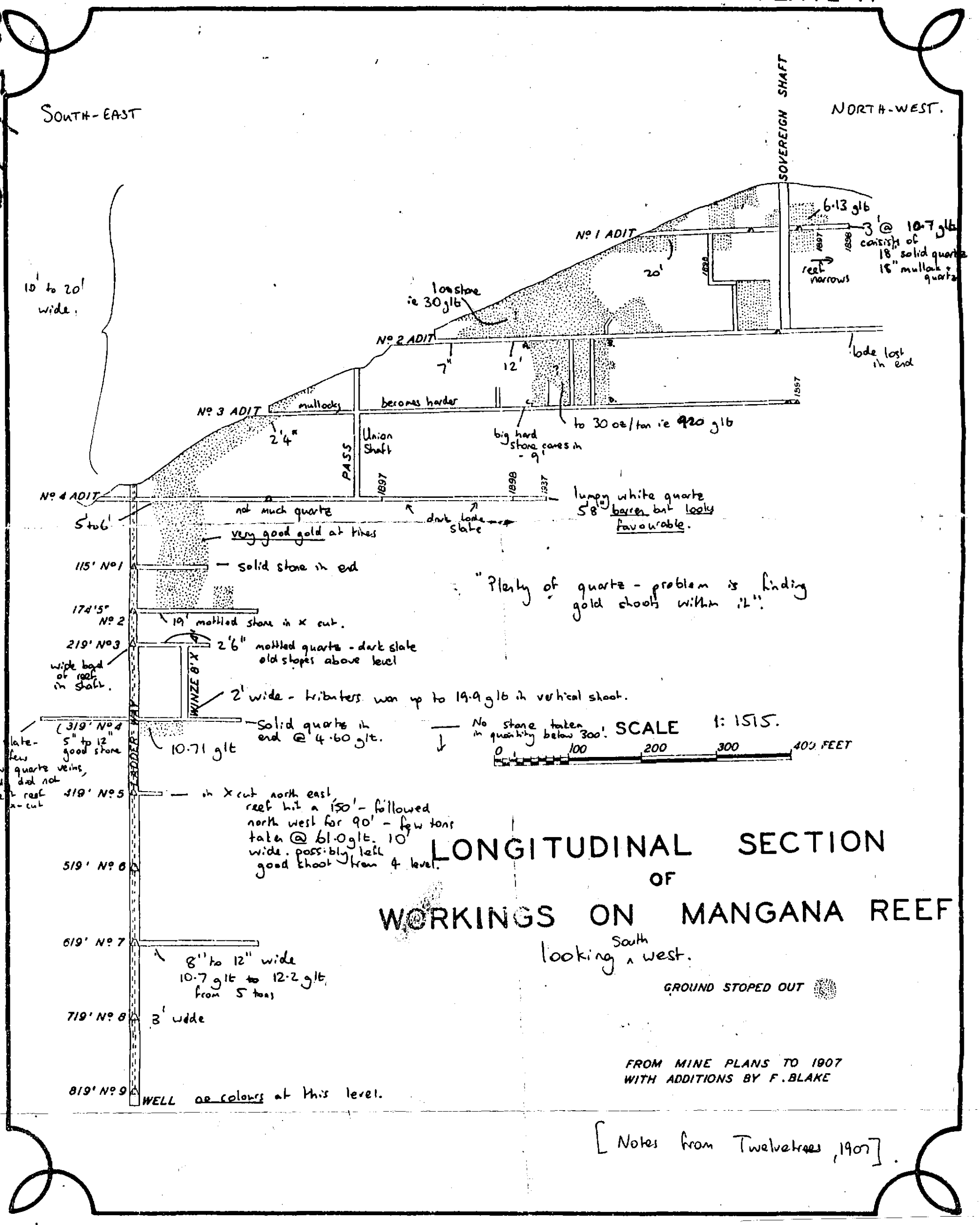
3280033

RESOLUTE SAMANTHA LIMITED

FINGAL GULLY CHANNEL SAMPLE LOCATIONS AND STRUCTURES

Scale : AS SHOWN	
Date : FEB. '96	FIGURE 8

PLATE VI



LONGITUDINAL SECTION OF WORKINGS ON MANGANA REEF

looking South west.

GROUND STOPED OUT

FROM MINE PLANS TO 1907
WITH ADDITIONS BY F. BLAKE

[Notes from Twelvetrees, 1907].

5 cm

RESOLUTE SAMANTHA LIMITED

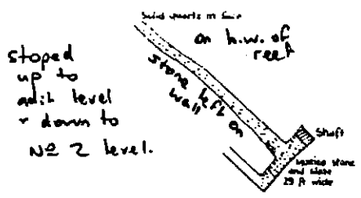
MANGANA GRID REEFS MINE
COMPILATION LONG SECTION

Scale: AS SHOWN	
Date: FEB. '96	FIGURE 10

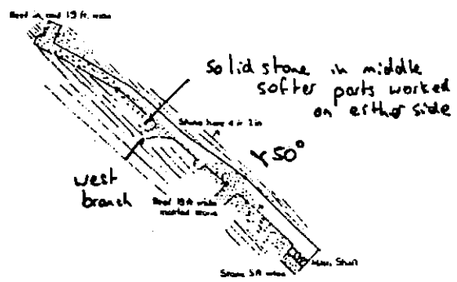
3280034

11

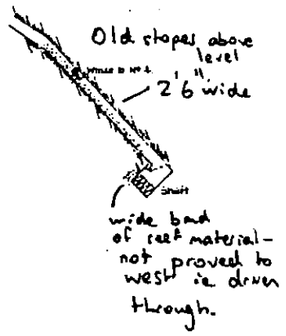
NO: 1. LEVEL
115. feet



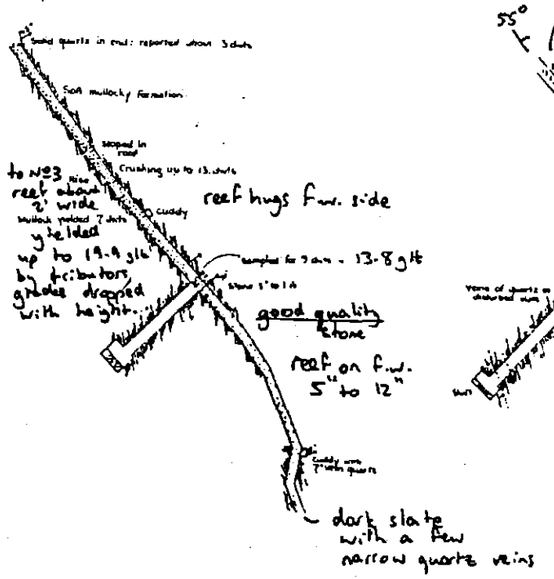
NO: 2. LEVEL
174: feet



NO: 3. LEVEL
219. feet



NO: 4. LEVEL
319. feet



NO: 5. LEVEL
419. feet

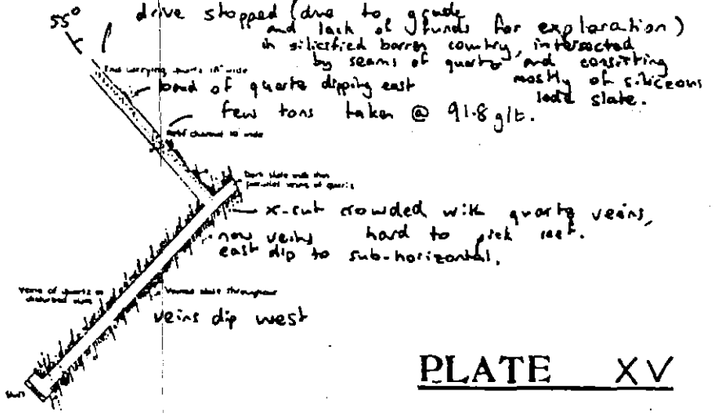
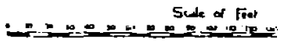


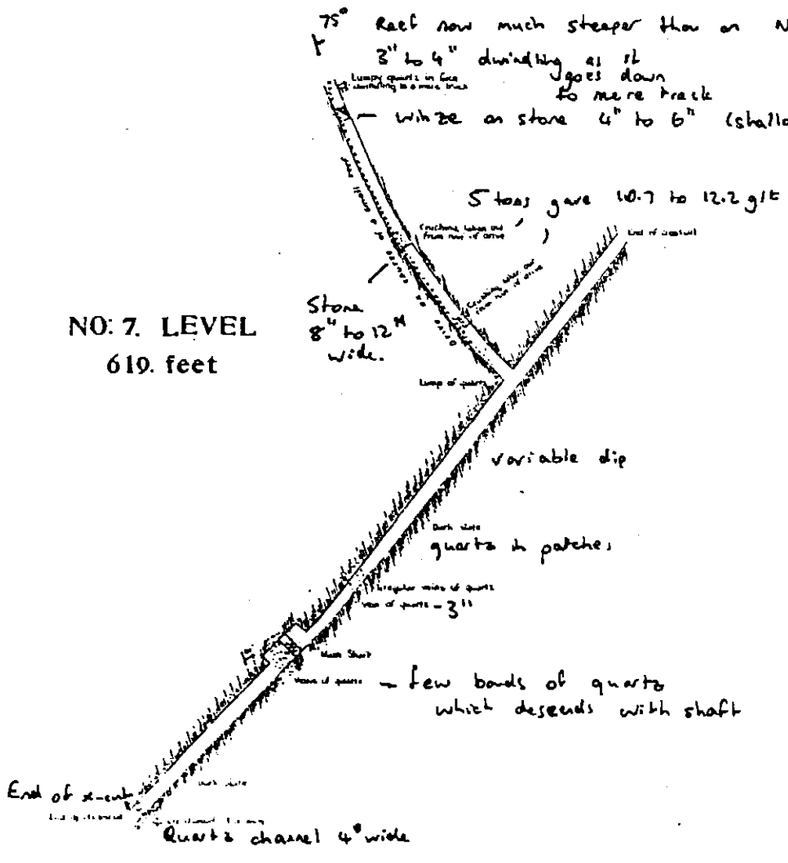
PLATE XV

MANGANA GOLD REEFS
PLANS OF LEVELS

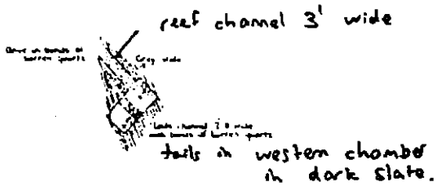


W. H. Trudinnes Government Printer Nov 1941

NO: 7. LEVEL
619. feet

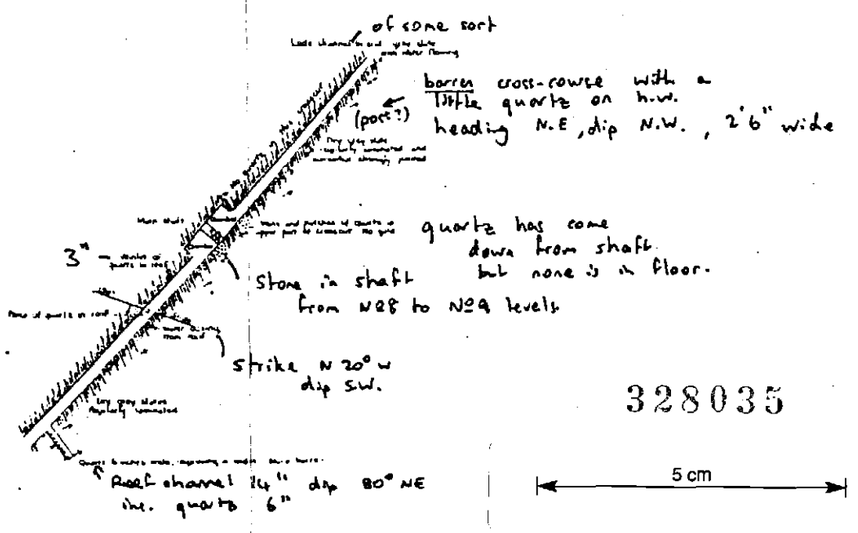


NO: 8. LEVEL
719. feet



NO: 9. LEVEL
819. feet

x - expected post (ME).
x — position reef expected, (FT)



328035

5 cm

RESOLUTE SAMANTHA LIMITED

MANGANA GOLD REEFS MINE
PLANS OF LOWER LEVELS

Scale: AS SHOWN	
Date: FEB. '96	FIGURE 12

There are stories in the district of the discovery (fairly recently) of a reef channel in this area. This reef may continue onto the Tower Hill Freehold mine. This line of strike was not covered in gridded soil sampling.

7.4 Aeromagnetics Enhancement/Interpretation

The enhanced aeromagnetics reveals the existence of a major structure (F5) passing north-north-westerly through the Fingal Mine. This structure was covered by gridding along its length within EL 18/91. It has no geochemical signature south of the Fingal Mine, however, it appears to pass through the zone of Au and As anomalism on Blackboys Ridge.

The aeromagnetic interpretation also indicates the presence of a magnetic granitoid at depth below Mangana but does not show east-north-east trending cross structures.

7.5 Channel Sampling

Channel sampling in the mouth of the Mangana Gold Reefs No 4 adit did not indicate the existence of broader lower grade but economic selvedges to the higher grade reefs (see Figure 6).

Channel sampling of both sets of quartz veins in the Fingal Gully indicates that both sets are associated with weak gold mineralisation (see Figure 8).

8.0 CONCLUSIONS

The initial work carried out by Resolute Samantha Limited ie historical research followed by extensive gridded soil sampling, was expected to define areas for further detailed work. Similar work was undertaken on Resolute Samantha's other tenements. Encouraging results elsewhere contrasted with the generally poorer results on EL 18/91 leading to work elsewhere being prioritised.

Subsequent geological mapping, rock and channel sampling in EL 18/91 was limited by this prioritisation.

However, results of follow-up work (drilling) on soil anomalies on other tenements suggests that this over-reliance on soil sampling may have been unwise. Some emphasis should have been placed on drill testing under old workings.

A number of recommendations can be made:

- The full potential of the Mangana goldfield has not been adequately assessed.
- Further work should place more emphasis on drill testing under old workings. In particular the Argyle, Golden Entrance and Mangana Gold Reefs mines. In the latter case a hole should be targeted just beyond the north end of the No 4 adit.
- Some effort should be put into following-up the soil anomalies defined in our work. In particular the Blackboy Ridge anomaly with its coincident aeromagnetic structure is of high priority. Lower tenor gold or broad arsenic anomalies may also have an unrealised significance.
- In all of this work it must be realised that the target is likely to be a narrow high grade reef with mineralisation focussed in sub-vertical shoots with limited strike extent.

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APPENDIX A

Review of Previous Work. Alberton - Mangana Zone - L A Newnham (1992)

5 REVIEW OF PREVIOUS WORK: ALBERTON-MANGANA ZONE

5.1 Historical Exploration and Development:

Gold was discovered at Mangana in 1852, and as exploration logically extended to the North, further discoveries were made, eventuating in the definition of four significant and distinct zones of mineralisation:

- Lyndhurst to Mangana
- Lisle
- Lefroy
- Beaconsfield

By the 1880's, significant gold mines were operating on all four fields. In the Lyndhurst-Mangana zone, activity was concentrated on the southern section between Mangana and Alberton within a 70 x 5 km belt of deformed turbiditic sediments.

Exploration was intense in this corridor. The classical target was narrow, high grade sulfidic quartz veins. It was recognised at an early stage that these veins were structurally controlled and occurred in a range of orientations and forms within zones of shearing and tectonic deformation.

In these early days, economic grades were 20-30 g/t gold, and cut-off grades 15 g/t.

Recorded production in the Alberton-Mangana area was dominated by the New Golden Gate Mine. The top 10 producers were:

New Golden Gate	254,000 oz	Mathinna
City of Hobart	22,000	
Tasmania Consolidated	11,000	
Volunteer	3,000	
Volunteer Consolidated	2,000	
Ringarooma Gold Mining	9,000	Alberton
Mt. Victoria	5,000	
New River	5,000	
Mercury	2,000	
Golden Entrance	3,000	Mangana

Several of these individual operations were probably working the same orebody, or extensions of nearby deposits, for example, the Tasmania Consolidated reefs were the northern extensions of the New Golden Gate reefs, and the Argyle Mine the southern extension of the Golden Entrance Mine.

A full listing of mine production and mine dimensions appears as Appendix 4. Principal mines are clustered into four districts or "goldfields":

- Alberton
- Dans Rivulet
- Mathinna
- Mangana

Dans Rivulet may simply be a southern extension of the Alberton field, with a belt of younger (post mineralisation) rocks on Mount Victoria artificially dividing the field.

The division of the belt into three or four sub-goldfields, combined with the apparent westerly offset of the Mangana field may be due to important regional structural factors which will be discussed further below.

Significant mine production continued till about 1920. The generally rugged nature of the country allowed easy mine access by either shafts or adits. Typical vein features throughout the belt were:

width	0.1-1.0	up to 5 m
length	10-100m	up to 350m
depth	<100m	up to 580m
grade	15-30g/t	cut off 15g/t
strike variable,	NW to NE dominant	
dip typically steep	70 to 80^0	
mineralisation	quartz, pyrite, arsenopyrite, minor galena, chalcopyrite, sphalerite.	

Individual veins often existed in "lode formations", which tended to be wider structural features carrying several narrower but parallel quartz veins. The fragmented sediments and clays in these formations typically carried low gold grades and the quartz veins were selectively mined.

Outside these formations the host shales and sandstones carry virtually no gold (<0.01g/t)

Several early mills were constructed, principally at Mathinna, Mangana and Alberton. Generally these were simple stamp and gravity mills which recovered most of the coarse free gold, but gold closely associated with sulfides was lost. The New Golden Gate mill experimented with cyanide extraction treatment of their sulfides with limited success.

Initial early exploration was by stream sediment panning, closely followed by widespread pitting, trenching, shallow shaft sinking and adit development. Grades and prospectivity of quartz veins was determined with the dolly pot and test crushings of small parcels of quartz vein material in the numerous small stamp batteries in the district.

Interestingly some prospecting is still undertaken on the field today using these traditional methods.

An important but not unexpected feature of this area is that many of the quartz veins never outcropped, and were only discovered during underground development aimed at other veins. This was conspicuously the case at the New Golden Gate Mine.

By 1920, all significant production and exploration had ceased. Apart from small scale prospecting, the field essentially lay dormant until about 1960.

During this 40 year interval, the Department of Mines attempted to

stimulate activity by completing drilling programs at the Long Struggle, Krushka, Prendergast, O'Briens and New Golden Gate Mines. Drilling results at the Long Struggle (Alberton) and O'Briens (Dans Rivulet) mines were encouraging by contemporary standards, but were not sufficiently so at the time of drilling.

5.2 Contemporary Exploration and Mine Development:

Commencing in the late 1950s the field has been subjected to a mosaic of exploration and mine development programs which have generated much knowledge and information, but little gold. This work is reviewed chronologically below and on a district basis in the succeeding section 6.

5.2.1 E.Z. Company - 1959:

(Ref. Appendix 1/4,5)

In 1959, E.Z. completed an aeromagnetic - EM survey over a large section of North East Tasmania.

Instrumentation and altitude control problems were experienced during the survey, which was undertaken with a fluxgate magnetometer and dual frequency EM equipment. Magnetic results were generally flat, and EM responses were attributed to water filled shear zones.

A number of anomalies were defined in the Fingal-Alberton area and several were ground checked. No detailed follow-up work eventuated.

5.2.2 Geophoto Resource Consultants - 1969-74:

(Ref. Appendix 1/6-13 and 15-22)

Geophoto held EL 6/68 for six years to facilitate major exploration programs for a range of commodities and targets in North East Tasmania.

The south west corner of the 1050 sq. kilometre licence covered the Mathinna-Mangana area.

Regional Studies

Initial work was of a regional nature over the whole licence area and included airborne scintillometer surveys, stream sediment sampling programs and broad geological reviews (1/6,7,8).

They concluded that folding and deformation was more intense in the major mineralised areas and decided to continue exploration for gold in the Mathinna-Mangana area, initially using a regional fracture analysis to highlight areas and to follow these up with gold-arsenic geochemical surveys and geophysical programs in major shear zones.

They also decided to test for alluvial gold in the Mathinna area.

For various reasons, Geophoto had technical difficulties with their fracture analysis study, but eventually produced some useful data (1/8,11). In addition to quantifying major structural features they also attempted to define placer channels beneath Cainozoic cover.

They concluded (on the basis of fracture analysis) that the gold zone was dominated by a primary NW trend overprinted by a later NE trending direction, and proposed that mineralisation was located where NE tension zones cross the NW trend (Fig. 3)

This general structural concept has received independent support from later workers studying local and regional structure in NE Tasmania.

Outside the main Mangana-Mathinna area, Geophoto also highlighted the potential of the Golden Ridge area NNE of Mathinna, which currently lies just outside the Newcrest tenements within E.L. 58/88 (1/10,21). They mapped the area and took 57 soil samples which were assayed for Cu, Pb, Zn, Ag. No further work was undertaken. This area was again highlighted by Billiton in 1991 (see below)

In 1972, Geophoto reduced their Licence to 56 sq. kilometres around Mathinna and directed further work at both detailed ground surveys over several former mines and an evaluation of alluvials in the region.

Detailed Primary Gold Programs (Mathinna Area)

Ground surveys were concentrated on grids established over the Jubilee-Mountaineer area and the City of Hobart- Chester and Murray-Old Boys-Volunteer area to the South and West of the New Golden Gate Mine respectively (see Figure 11 for general location).

These two areas were selected because of their structural setting. The Jubilee-Mountaineer area lay within the "zone of close folding" which ran immediately west of the New Golden Gate and was regarded as an important genetic factor in the development of that deposit(s).

The City of Hobart-Volunteer area lay immediately west of this zone, arguably in a deformed region associated with the "zone of close folding" which would correspond to the New Golden Gate position on the east side of the zone.

The Jubilee Mine also attracted attention because it is one of the few mines in the district interpreted as having been developed on saddle reef stratabound type veins.

Geophoto mapped their whole E.L. at 1:6,300 scale and the specific grid areas at 1:750.

On the **Jubilee Grid**, they experimented with various geophysical techniques including I.P. (dipole-dipole) and VLF. Whilst these methods defined fault zones, Geophoto doubted (quite correctly) their ability to locate concealed mineralised veins.

The grid was soil sampled and assayed for Cu, Ni, Co, Pb, Zn, Ag, As, Mn, Sb, Hg. The As:Cu ratio was considered a useful pathfinder for Au. The logic of this was not explained and must be questioned.

Two trenches dug over the strongest geophysical anomalies were mapped and sampled in detail. Few quartz veins were exposed and assays were disappointing.

Apart from mapping, the City of Hobart-Volunteer Grid was soil sampled, with discouraging results.

Following this grid work, Geophoto concluded:

- structure is important in the genesis and formation of the lodes.
- geophysical methods were of limited value.
- geochemical soil sampling was useful but limited.
- drilling was the best exploration method.

However, they undertook no drilling in their exploration for primary gold deposits.

Alluvial Exploration: (Ref. 1/15, 17, 19-22)

Geophoto had an alluvial search objective of a minimum $0.8Mm^3$ of 3g/t Au (seems high?)

They tested alluvial deposits in Black Horse Gully and Long Gully Creek which drain north from Mathinna into the South Esk River, and in the Dans Rivulet north of Mathinna.

They also undertook limited auger sampling of the New Golden Gate tailings.

In **Black Horse Gully**, west of Mathinna, sampling in 1906 by Twelvetrees had indicated $600,000m^3$ of $750 mg/m^3$.

Geophoto initially took 104 samples from five lines of backhoe pits. Two of these lines indicated a possible $100,000m^3$ of $500mg/m^3$.

Following a further 94 holes on five lines, they concluded the results were highly erratic with most gold in the bottom 0.5m.

In **Long Gully Creek**, two lines of pits were completed but results were poor.

Following several lines of seismic profiling in the lower **Dans Rivulet** valley, seven backhoe pits and 18 cable drill holes on three lines

were completed along Claytons and Mathinna Falls Road and north of Mathinna Falls road. Difficulty was experienced with water inflows. The alluvium was up to five metres thick and the best grade was 500mg/m^3.

Because their minimum target resource was not apparent in any of the above three areas, no further alluvial exploration was conducted.

5.2.3 **Una-Hinemoa Syndicate 1973-75:** (Alberton and Dans Rivulet)

References 1/14, 23

Special Prospecting Licence 107 was held by a local syndicate over the Strickland, Una, Hinemoa Mines in the North end of the Dans Rivulet goldfield from 1973-75. (These mines straddle the boundary of E.L. 23/92).

They were inspected by representatives of Geopeko (1973) and Mt. Lyell (1975) as potential joint venture partners.

On both occasions, narrow cleavage parallel quartz veins exposed in shallow adits and pits were sampled. Values range from 2-45g/t Au but no further work was undertaken and the tenement was relinquished.

This style of cursory examination and sampling generally adds little to the understanding of geology or potential of these vein systems.

5.2.4 **Stannon Engineering Co. Pty. Limited 1975-76 (Alberton):** References 1/24,25.

This Company (of which little is known) held E.L.'s 6/76, 7/76, 8/76 over the Alberton gold field from 1975-76.

Their interests centred on the main Ringarooma Mine and the adjacent Mercury Mine.

Apart from lengthy dissertations, based on historical data, on the virtues and benefits to be had from drilling, re-opening and developing these two mines, their reports contribute little to knowledge or exploration of the area.

5.2.5 **Amdex Mining Limited 1980 (Alberton):**

Reference 1/31

Amdex Mining Limited and Kibuka Mines Pty. Limited briefly explored E.L. 7/80 of seven sq. kilometres over the main Alberton mines

under an agreement with a local syndicate.

They regarded the Alberton lodes as emplaced by selective replacement of sheared country rock in a linear shear zone of either strike slip or wrench faulting.

Some samples were taken from the Hannah Tunnel on the Ringarooma Mine and the Long Struggle adit.

Results were low grade and no further work was undertaken.

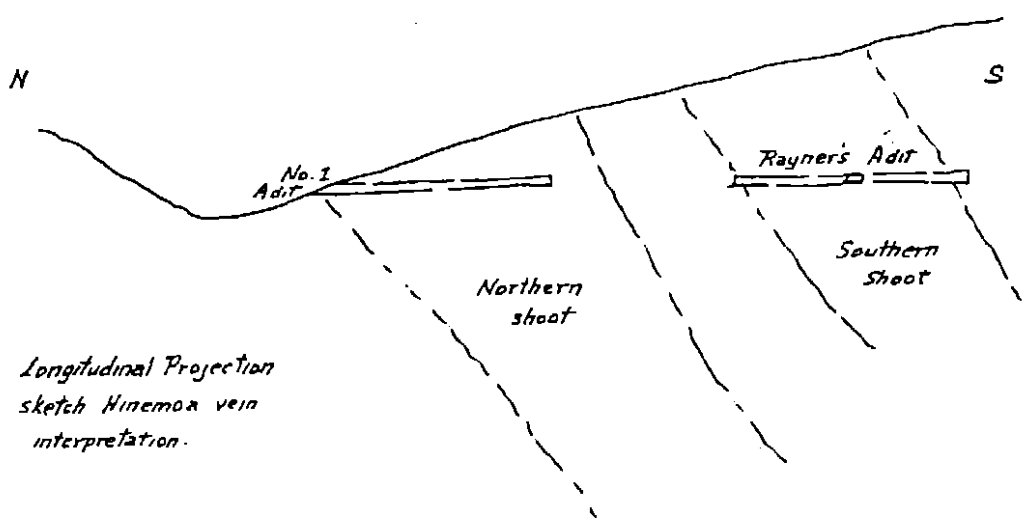
5.2.6 Sturts Meadows Prospecting Syndicate 1980 (Dans Rivulet area):

Reference 1/29

This syndicate held E.L. 31/76 over the whole Dans Rivulet gold field, and field work was undertaken by A.C. Howe Australia Pty. Limited.

Most of the area lies outside the Newcrest tenements with the exception of the Hinemoa and Una Mines.

Sturts Meadows thought the **Hinemoa Mine** was developed along a single vein system for 250m by way of three adits and a series of trenches. Two 'ore-shoots' were developed along this north-south vein, each shoot with a strike length of 50-60m, width 0.25m, dip 75^0N, plunge South. The northern shoot was developed in No. 1 adit and the Southern shoot in Rayner's adit.



Longitudinal Projection sketch Hinemoa vein interpretation.

At the **Una Mine**, five adits were interpreted as having been driven into a major shear zone consisting of a number of parallel (?) lodes. The syndicate considered this to be a strong structural NNW trending zone 550m long and 75m wide, which warranted further investigation.

At Una [illegible] may be worth a look.

In the event, no further work was undertaken in this area.

5.2.7 **Mineral Holdings Australia Pty. Limited 1980-81 (Dans Rivulet):**

(Reference 1/41)

E.L. 3/80 covered all the Dans Rivulet area and was taken up when Sturts Meadows relinquished E.L. 31/76 (above).

Selective samples were taken from known workings, including the Una and Hinemoa, but the results and consequences of this work are of limited value.

5.2.8 **Tasminex N.L., 1978-82 (Mathinna-Mangana Area):**

Reference 1/26,27,28,30,39,40,44,46.

Tasminex held E.L. 17/78 over the Mathinna-Mangana area for a four year period from 1978-82.

Their principal objectives were:

- Explore for alluvial gold deposits
- Explore for primary gold deposits
- Retreatment of tailings

Alluvial gold exploration:

Tasminex's minimum alluvial target was 0.5Mm^3 at 500mg/m^3 Au.

They concentrated sampling on Black Horse Gully, Long Gully Creek at Mathinna, Dans Rivulet north of Mathinna, and Richardsons Creek and tributaries north of Mangana.

Initially samples were taken with a backhoe and concentrated on site with a pan to give 50-300g pan concentrate samples.

The method used to reduce a backhoe sized sample to a pan concentrate is not made clear in their reports.

Pan concentrates were grain counted and assayed.

In total 1026 samples were collected from 15 lines on Black Horse Gully and Long Gully Creek, four lines at Mangana, and 16 pits in Dans Rivulet. Sample lines were generally 300m apart, with sample points every 25m.

Of the 317 samples assayed, 169 contained detectable gold. Considerable problems were encountered in reconciling assays with pan

concentrate grain counts.

At Mathinna the alluvials were generally 2-3m thick, at Mangana in excess of 6m, and at Dans Rivulet in excess of 4m.

In contrast with earlier Geophoto sampling, Tasminex found most of their gold at Black Horse Gully near the tops of holes, not the bottoms.

Because of perceived discrepancies with assays, further sampling was undertaken by passing bulk samples (10-160m^3) through a small pilot plant equipped with screens and jigs. Nine samples from Mathinna and four from Mangana were processed in this manner.

Mathinna grades were in the 20-460mg/m^3 range and Mangana (Majors Gully) 70-270mg/m^3.

Volumes were estimated as less than the minimum target and no further alluvial testing was undertaken.

Primary Gold Exploration;

Tasminex explored the Mathinna-Mangana area for primary gold deposits.

Initially they undertook both orientation stream sediment surveys to establish effective district parameters, and compiled available data on known deposits.

Minus 80 mesh active sediments were collected and assayed for Cu, Pb, Zn, As. As a result of this work, Pb and As were considered good pathfinders for mineralised quartz veins.

Forty seven mines were located within the E.L., and sampled. Of the 691 samples taken, 219 were in-situ vein samples and 472 quartz veined dump samples. Samples were crushed and only those with visible gold were assayed. (This whole exercise seems rather pointless).

They evaluated a range of geophysical methods as a way of prioritising these mine targets, but concluded that all available methods were likely to be ineffective in locating the anticipated reef targets sought.

A detailed study of the **New Golden Gate-Tasmania Consolidated Mines** was undertaken, including a thorough analysis of the structural controls on mineralisation.

They concluded:

i) reefs were developed in a folded zone east of a major shear zone, equivalent to the 'slide' or 'zone of close folding' of earlier workers.

ii) gold grades were influenced by changes in strike and dip of the reef.

iii) scope existed for the reefs to extend North at depth.

Based on these conclusions, they proposed a program of four cored holes to test the northern extension of the East Reef and the depth extension of the West Reef beneath the Caledonian Mine.

It was also proposed that the East and West Reefs could be further tested by extending the previous drilled Department of Mines No. 3 hole.

Tasminex identified several other mines within their E.L. which warranted drilling.

At the **Jubilee Mine**, the Flat, Derby and Lyons Reefs were interpreted as part of the same reef transposed by folding along a SSE plunging axis (ie) a disrupted saddle reef. Last production was from the 79m level where 18 tonnes ore averaged 45g/t Au. Tasminex proposed one hole to test the southern extension of this lode.

At the **City of Hobart Mine**, the reef varied in dip around the vertical and was thought to have been displaced by a fault at the 174m level.

The **Miners Dream Mine** was close spaced sampled but results were disappointing.

Tasminex proposed one hole under each of the above two mines.

They regarded the reefs at Mangana to be more strike persistent than at Mathinna. They identified the **Argyle Mine**, which is a SE extension of the Golden Entrance Mine, as warranting investigation.

The main Argyle reef was developed by three adits - the No. 1S, No. 2S, and No. 2N. Production between 1900-1905 was 2400oz. from 604 tonnes ore at an average 124g/t.

Tasminex sampled the No. 1S adit (Figure 12). The vein averaged 0.5m wide and samples averaged 31g/t. They re-opened the lower No. 2S adit for 38m and all eight samples taken from across a 0-2.0m wide sulfidic quartz reef zone were <0.3g/t Au. This is not surprising because the south plunging reef in the No. 1S Adit would be present in the 80m of No. 2S Adit which was not re-opened. They recommended one drill hole to test this reef.

Despite all the recommendations for drilling by Tasminex in the Mathinna-Mangana area, no drilling was undertaken (or at least reported). They appear to have rapidly lost interest in the primary gold potential of the region and turned their remaining attention to tailings retreatment opportunities.

Tailings Retreatment:

Tasminex completed various resource definition and metallurgical studies on a number of tailings dumps in the Mathinna-Mangana area, concentrating on the New Golden Gate tailings.

They decided at an early stage to pursue a heap-leach treatment route. Their resource estimate of the New Golden Gate at 265,000 tonnes 1.5g/t compares with 323,000 tonnes by the Department of Mines in 1948.

Other dams in the district were estimated at:

City of Hobart	6000t	0.43g/t
Mangana Reefs	9000t	0.82
Volunteer	4000t	0.65
Twilight	2000t	2.38
City of Melbourne	1000t	2.07

The total district was therefore about 300,000 tonnes of 1-2g/t material.

Tasminex concluded that the primary, alluvial, and tailings retreatment potential of the area was unattractive and withdrew from the region.

5.2.9 **Australian Anglo American Corporation 1981-82** (South Esk River):

References 1/32-35,37,38,42,43,45.

Anglo identified the South Esk river flats between Fingal and Mathinna as representing a large volume alluvial target containing gold shed from the extensively eroded Mathinna and Dans Rivulet goldfields. (Fig 3)

Initially they attempted to define paleochannels using ground magnetics. This was unsuccessful so drilling commenced in 1981 using a Gemco 210B rotary rig. They acknowledged that this rig was unsatisfactory for anything other than quantifying alluvial volumes (ie) depth to bedrock. However, samples were collected, screened to -20 mesh and panned to a 10-30g concentrate.

In this first program, 47 holes were completed on nine lines on 400 metre centres.

Potentially large volumes of alluvials were indicated in two sedimentary regimes north of Beauty Flat Road:

- lacustrine environment
- fluvial channels on west side of valley.

A second program of 233 holes totalling 2526m was completed on 80m centres along lines 800m apart north of Beauty Flat Road using an RC rig. Samples were deslimed, cradled and panned. This program indicated the alluvials were generally <8m thick and low grade.

A third program of detailed drilling was completed in the Marshalls Flat area where alluvials were up to 14m thick but averaged six metres. Spot values up to 1305mg/m^3 were obtained, with some holes in the 200-500mg/m^3 range. However block grades were generally <100mg/m^3.

Some cable tool drilling was then undertaken north and south of Beauty Flats Road to check the validity of RC sampling.

Cable results were generally 50% of RC results.

Anglo concluded that the most promising area was on Marshalls Flat where alluvials were 6-8m thick and 1-2Mm^3 at 50mg/m^3 were indicated.

This resource did not meet minimum target sizes, so the project was abandoned.

Prior to relinquishing the E.L., Anglo undertook some stream sediment sampling over outcrop areas in the N.E. and W of the licence

area. Orientation studies indicated the -20+40 mesh fraction was best. They then collected 201 samples which were assayed for Cu, Pb, Zn, As, Au.

Au and As anomalies were outlined in the Miami-Mullers-Little Hospital Creek area, which may all be attributed to the scattered small scale mining operations at the Daylight-Great Fingal Mines.

Follow up work was cursory and the E.L. was relinquished.

5.2.10 **Oceania Tasmania Pty Limited 1984-88ø** (Alberton):

References 1/47,48,54,57,58,63

Oceania held the principal mines of the Alberton district under E.L. 23/82 from 1984-88. Their search objectives were extensions to the lode deposits of the Long Struggle, Mercury and Ringarooma Mines, and to a lesser extent, the alluvials in the Dorset and New Rivers.

They regarded the main primary deposits as occurring in the west limb of a regional N-S anticline which had been deformed and broken by a period of later NE trending cross-folding. Mineralisation was considered strongest where the cross-folding deformation was greatest.

Oceania re-opened the main adits of the above three mines. In the Ringarooma and Mercury Mines they described main vein formations as being 1-1.5m wide, with lode formations 10-20m apart. The ground between the formations is unmineralised.

Apart from clearing out adits, Oceania appears to have done little other work during the currency of the Licence. They experimented in a relatively crude fashion with EM as a means of locating concealed quartz veins. However the results and usefulness of this work is questionable.

In 1987, Renison Goldfields Consolidated Limited was exploring for gold over the north half of the Lyndhurst-Mangana zone. As part of this work, they received permission from Oceania to map and sample the principal workings on the Alberton Field. The results of this work are reviewed in 5.2.11 below.

When Oceania relinquished E.L. 23/82, they acquired three 100 hectare Mining Leases over the main workings to enable them to continue working in the area. These leases are current, and some minor underground exploratory work is in progress.

5.2.11 Renison Goldfields Consolidated 1986-87 (Alberton Area)

Reference 1/59,60,73.

In 1982, RGC commenced a detailed review of all known gold deposits in NE Tasmania (Appendix 12). They produced a comprehensive deposit data base (1/73) for the whole Alberton-Mangana zone. The data base was essentially reproduced and upgraded in the Alberton area for this report (Appendix 5) and used extensively by the Department of Mines for their Mathinna and Mangana reports (Appendices 5,7).

This regional review led RGC to acquire E.L. 17/86 over the northern half of the Lyndhurst-Mangana zone from Branxholm to Dans Rivulet.

Most of the former mines in this zone were located and where accessible, mapped and sampled.

RGC's target was bulk mineable quartz vein stockwork mineralisation. It was rapidly concluded that stockworks adjacent to major veins, or high concentrations of major veins did not exist in their E.L. area.

The Alberton field (held by Oceania) was identified as being the most prospective area for the target model and Oceania gave permission for RGC to map and sample their E.L. 23/82. Fig 10 of the Alberton Field is largely based on the RGC work.

RGC concluded the Alberton mines occurred in a narrow NNW zone of tight folding. Stockwork vein systems were unlikely, but areas of close spaced major veins were possible.

All accessible workings were mapped and sampled in detail. At the Mt. Victoria Mine, an 18m quartz vein stringer zone from 166-184m assayed 2.52 g/t. This zone was apparently evident in the lower two adits but not in the upper adit. It appears to cross-cut bedding and cleavage and may represent fault or fissure in-filling.

They reviewed at length the results of the 1933 Department of Mines underground drilling on the Long Struggle Mine, and concluded:

- Hole 1 intersected 2.5m (horizontal) 15g/t Au representing the northern extension of the Long Struggle Reef which had split into three bedding parallel quartz reefs within an overall reef formation 2.5m wide.
- 33m E of this reef, Hole 1 intersected an extension of the Caxton No 1 Reef which assayed 3.6g/t over 0.6m.
- Hole No 2 was drilled parallel to anticipated reefs.
- Hole No 3 was prematurely abandoned.

RGC withdrew from all exploration activities in N.E. Tasmania in 1987 because of other priorities.

5.2.12 Epoch 1985 (Mathinna)

Reference 1/52

When Tasminex withdrew from the Mathinna area, Epoch Minerals Exploration N.L. acquired E.L. 35/81 with a view to retreating the New Golden Gate tailings.

They thoroughly reviewed all past testwork on the tailings and concluded that whilst the insitu grade was approximately 1.5g/t, various cyanidation extraction routes would recover considerably less than that:

- heap leaching: 0.55g/t recovered
- agitated leaching: 0.75
- grinding followed by agitated leaching 0.85

Epoch was discouraged by these results and decided not to proceed with further studies. They entered into an agreement with Alex White to take over the tenements.

5.2.13 K.A. White 1983-90: (Mathinna-Mangana Area)

(Reference 1/49,51,56,61,65,66,69,77)

E.L. 55/83 has essentially been explored by Alex White for eight years under various names and joint venture: as K.A. White, then Tasmanian Alluvials, then Alcaston Mining N.L., then Pegasus Gold Australia Limited.

Work has been directed at:

- alluvials at Mangana and Mathinna
- tailings and dump retreatment
- primary gold

Alluvials:

White concentrated on testing alluvials in three areas:

- Majors Gully north of Mangana
- Black Horse Gully west of Mathinna
- South Esk River flats north of Mathinna

In 1984, 17 backhoe holes were completed in **Majors Gully**. Results were encouraging but were not followed up until 1985 when a number of trenches and pits were dug and the 800m^3 bulk samples obtained were processed through an on-site pilot plant. The alluvials

averaged 2.7m thick over widths of 55m.

A resource of 300,000m^3 of 307mg/m^3 was estimated, and most of the gold was present in the lower gravel layer.

In 1987, E.L. 55/83 was transferred to Alcaston Mining N.L., who estimated the Tower Rivulet and tributaries (including Majors Gully) contained a possible 7.4Mm^3 of alluvials.

A production processing plant was constructed but subsequent results were disappointing. The plant has not operated now for several years.

The remaining resource in Majors Gully is estimated at 250,000m^3 300mg/m^3.

At **Black Horse Gully** in 1986, three costeans were dug for bulk samples, and 16 excavator holes were dug to establish wash: overburden ratios.

The bulk samples were each approximately 750m^3 and were processed through Alex White's pilot plant at Lisle.

Results were:

Costean 1 (Dunn St) 240mg/m^3
Costean 2 (Upper Esk Road) 160mg/m^3
Costean 3 (Black Horse Gully) 270mg/m^3

A resource estimate was 750,000m^3, including 500,000m^3 of greater than 240mg/m^3.

Average wash depth was 2-3m, and the overburden: wash ratio was in the range 1:1-1:5.

Some limited testing of alluvials on the **South Esk River flats** was apparently undertaken in 1987 in the Midson's Flats area, which is upstream of the areas tested by Anglo in 1981. The target was a large volume of dredgeable material close to where Black Horse Gully and Long Gully Creek join the South Esk River

The work appears to have been limited (possibly by landowners) and no results are reported.

Tailings and Dump Retreatment:

White acquired rights to the New Golden Gate tailings from Epoch. He has recently received government permission to cyanide heap leach the tailings and has established some plant on site. Problems were experienced in 1991 with local sheep graziers down stream, however the problems were not attributed to White and the issue has been resolved.

It is believed no actual retreatment has yet taken place.

In 1985, tailings dams were sampled at several former mines in the district:

Mangana Reef	1.6g/t
Fingal Reef	1.4
Union Reef	2.59

No estimates of tonnages were made.

The Mangana Reef tailings grade is double that obtained by Tasminex.

Primary Gold:

Primary gold exploration on E.L. 55/83 has been concentrated in the New Golden Gate, Tower Hill and Argyle Mine areas, eventuating in drilling programs on the latter two areas.

In 1985, a detailed review of the geology of the whole E.L. was undertaken (Ref. 1/49) and the main conclusions were:

- the NE and NNE quartz reefs were fissure fillings resulting from dextral rotation on a NW-SE shear couple.
- EW (or NE) reefs tend to have longer strike lengths than NW (bedding and cleavage conformable) ones.
- dextral movement on the NW goldfield lineament is conjugate to sinistral movement on the parallel Tamar Fracture System.
- quartz veins were either fault bound (New Golden Gate) or stratabound (Horseshoe, Jubilee, Eldorado, Oldboys, Tower Hill).
- there were two phases of gold mineralisation; an earlier one accompanying sulfides and a later one as discrete gold.
- scope for strataform or saddle reef deposits is limited.

A rather unique and interesting interpretation was placed on the reefs at the New Golden Gate which were interpreted as forming within two main lode channels:

- a 30m wide eastern channel carrying Loanes and Main Reefs.
- a 33m wide western channel carrying central and Western Reefs.
- near surface, these formations consisted of stringer mineralisation and it was only in No. 1 and No. 2 Levels did discrete reef structures develop (it is interesting to rethink the importance of the stringer zone in the lower levels of the Victoria Mine at Alberton in this context).

It was suggested that these two wide lode channels or formations continued northward towards the North Golden Gate Mine.

Tower Hill was interpreted (as by all previous workers) as a 30m wide quartzite unit, approximately 250m long, carrying numerous narrow quartz veins with a random orientation.

The exploration target at this stage was low grade open cut gold mineralisation and the geological studies highlighted three possibilities:

- northern extensions of the two main New Golden Gate shear zones.
- Tower Hill north of Mangana
- Golden Entrance/Argyle Mine at Mangana.

Further work on these areas was apparently not undertaken until 1988 when Alcaston took control of exploration. Under their direction, the following programs were undertaken:

- structural analysis of the Mangana-Mathinna area using satellite imagery.
- sampling and drilling the Golden Entrance/Argyle Mine.

The **structural analysis** work indicated fold structures developed adjacent to both sides of a major structural zone encompassed most of the Mathinna and Mangana deposits.

Cleavage trends around Mangana show a deviation from the regional NNW-NW trend.

This structural analysis was largely repetitive of a number of previous studies and predictably the conclusions were similar.

At the **Argyle Mine** (Fig. 12) Alcaston took 38 chip samples from accessible workings and completed eight percussion holes.

Results of the chip samples were disappointing when compared with the results of the 1981 Tasminex sampling whose samples from No. 1 South adit averaged 31g/t from a reef structure averaging 0.44m wide. Of the 38 Alcaston samples, 21 were <0.1gt and 13 were in the 0.1-0.76g/t range. In the No. 1 South adit, two samples assayed 10g/t and 9g/t whilst in the No. 2 South adit, two samples assayed 4.9g/t and 3.1g/t.

Eight percussion holes totalling 245m were drilled. Logs and sections appear as Appendix 8. It was not clear from reports whether this drilling was open hole percussion or reverse circulation. Samples were collected through a cyclone and sub sampled with a spear. Whilst quartz veins were common, Au and As results were disappointing, with the best result in hole AA7 which intersected 8m 0.18g/t Au just below No. 2 South adit, with the highest assay being 1m 0.33g/t.

The effectiveness of this drilling program must be questioned (Fig. 12). Two of the holes were well west of the reef formation; one hole appears to have tested an adjacent reef to the west at a shallow depth; a further two holes penetrated the Argyle Reef 40m above the upper most workings and two further holes tested the Reef immediately beneath the No. 1 South adit. Only AA7 tested below No. 2 South.

In general, this program could not be regarded as a good test of the depth potential of this long, high grade reef formation.

In 1989, Alcaston entered into a joint venture with Pegasus to continue exploring E.L. 55/83. Pegasus concentrated their initial work on two projects:

- reassessment of previously flown Government aeromagnetics
- evaluation of the quartz veined sandstone units at Tower Hill.

Aeromagnetic data acquired by government as part of their NETGOLD project was reprocessed. It was concluded firstly that there may be some correlation between magnetic lows and gold mineralisation and secondly that carefully controlled magnetic surveys may be able to define quartz vein concentrations and thereby distinguish between mineralised and unmineralised ground.

It was therefore decided in 1990 to refly the area with a high resolution helicopter borne aeromagnetic survey. An interpretation of this data suggested structural trends within the Mathinna Beds may be expressed by subtle, systematic magnetic variations.

At **Tower Hill**, the quartz veined sandstone unit was gridded, mapped, chip sampled, soil sampled and covered with ground magnetic survey (Fig. 12).

Mapping defined two vertical, sub-parallel sandstone beds trending NW and separated and enclosed by slates. Quartz veins in the sandstones generally trend NE.

68 composite rock chip samples were taken from the high density quartz veined areas and assayed for Au, As, Pb; 17 of these samples, including 16 from dumps, assayed > 0.1g/t Au.

Soil samples were taken along grid lines with a hand auger; Pb values were low and Au, As values were patchy and generally low.

Ground magnetic data was spikey but the Mathinna Beds demonstrated relatively uniform magnetic properties. Some gross NW and NE trends were indicated. Magnetic lows existed over the Sunbeam and Tower Hill mines.

To follow up perceived anomalous zones, 13 RC holes were completed at Tower Hill in 1990 (Fig. 12). Logs and sections are attached

(appendix 9). Numerous quartz veins were intersected, some carrying pyrite, arsenopyrite and minor chalcopyrite.

Gold results in the four holes around the Tower Hill Mine were very low.

The best results were obtained in holes TH10 and TH11. These two holes were 50m apart and drilled NW beneath the Sunbeam Mine. Considerable variation was encountered between the original fire/AAS assays and the screen fire assay repeats. This is not unexpected in the Alberton-Mangana region where coarse gold presents assay problems.

TH10	Au (g/t)	Au (screen-fire)	As (p.p.m.)
11-12	0.2	0.20	70
12-13	0.35	0.43	70
13-14	0.81	2.08	85
14-15	0.28	2.26	9
TH11			
33-34	1.79	4.28	1300
34-35	0.63	0.74	3000
35-36	4.54	4.03	4700

It is possible these two intersections were on the same NE trending vein. Adjacent holes TH12 and TH13 were drilled at right angles to TH10 and TH11 (ie) parallel to this possible vein, and their low values suggest they missed the vein.

It is instructive to note the significant width of the As geochemical halo around the intersections in TH10 and TH11 (see logs). This is a useful exploration tool in this region and is commented upon further, later in this report.

At the conclusion of this work, Pegasus and Alcaston appear to have withdrawn from the area and the E.L. relinquished.

Alex White has subsequently applied for E.L. 17/91 and E.L. 18/91 over the Mathinna and Mangana areas respectively.

5.2.14 Mineral Holdings 1989: (Dans Rivulet Area)

Reference 1/67

In 1989, Mineral Holdings tested the alluvials on Rosedale Flat for cassiterite which was indicated by two previously drilled Department of Mines holes.

The Department's holes were drilled primarily to test the theory that the Dans Rivulet represented the northern continuation of the main Mathinna shear zone.

The existence of cassiterite in sludge from one of these holes is regarded as highly suspicious.

However, Mineral Holdings completed 12 churn drill holes and one excavator pit. No cassiterite was found and only very minor gold recorded in several of the churn drill holes.

The area was relinquished.

5.2.15 **Cominex 1989-90: (West Tower Hill area)**

Reference 1/71,76

Cominex is a family company operated by Hugh Nolan. In 1989, it held E.L. 55/88 on the west flank of Tower Hill.

Interest in this area, which lies to the west and outside the main Alberton-Mangana gold zone, was generated by the recent discovery of several narrow quartz veins by local prospectors Wallis and Roddam.

Nolan decided to take advantage of the presence of the aircraft completing the 1989 government aeromagnetic survey of the Alberton-Mangana area, and had them extend the survey west over E.L. 55/88.

Results again confirmed the magnetic blandness of the Mathinna Beds.

Following discouraging assay results from a limited number of chip samples, the Licence was relinquished.

5.2.16 **Placer Exploration Limited 1989-90 (North of Mathinna):**

References 1/74,75,80,81.

From 1989-90, Placer held E.L. 3/90, 10/89 and 8/89 to the NE and NW of Mathinna. Their target was Carlin or Ketza River style gold mineralisation.

Exploration methodology required taking both regional drainage sediment samples for bulk cyanide leaching, and stream sediment samples which were assayed for Cu, Pb, Zn, Ag, Au, As. Sample sizes were 5kg of -6mm material for the BCL tests and 1kg of -20 mesh silt for the stream sediments.

E.L. 8/89 covered the **Evercreech area** north of E.L. 17/91 (White) and in the far NE of Newcrest E.L. 22/92. BCL anomalies were obtained in Claytons and Evercreech Rivulets. Follow up stream sediment sampling on creeks and tributaries defined some low order spotty anomalies which could be traced to localised zones of minor quartz veining. Some anomalies were attributed to the King Mine.

Results were generally considered discouraging and the licence

was relinquished.

E.L. 3/90, **north of Mt. Saddleback** lay largely west of E.L. 23/92 (Newcrest). Similar surveys to those on E.L. 8/89 defined one unexplained anomaly near Olivers Hill. No source was identified by Placer but it may have been related to the Golden Possum workings.

E.L. 10/89, **west of Mt. Saddleback** again lay west of the Newcrest tenements. Similar surveys defined anomalies in three areas:

- Memory Creek
- Tombstone Creek headwaters
- Sweets Creek

The first two anomalous areas appear to fall within the Scottsdale Batholith. Follow up sampling failed to confirm the anomalies.

However, follow up sampling did confirm the Sweets Creek anomaly which was traced to a silicified quartz vein stockworked zone of Mathinna Beds in the headwaters of Sweets Creek. The outcrop area was 5-10m wide and 120m long (ref. 1/81).

The zone was mapped, chip sampled and partially soil sampled. It is strongly cleaved (320-330Mag-80^{0}NE) and brecciated with interstitial hematite, chlorite and mica, but no sulfides at surface. Strong anomalous As and patchy anomalous Au values were recorded in rock chips over a strike length of 200m.

Au and As grades increased to the north where sampling was halted by thick bush.

Placer tested the anomaly no further.

This area at 561600E, 5415600N lies outside Newcrest's E.L. 23/92 (Fig. 3) but is recorded here as an area of significant interest. The anomalous arsenic may represent a geochemical halo surrounding concealed gold mineralisation in a sizeable stockwork zone adjacent to the Scottsdale Batholith.

5.2.17 Billiton Australia 1989-92: (North East Tasmania Regional)

References 1/82,83.

Billiton identified NE Tasmania as a potential target area for the discovery of large tonnage open cut gold deposits, containing a minimum 15t. Au.

To better assess this potential, they undertook a variety of office studies, reconnaissance field mapping, and regional stream sediment surveys. Their initial target area was virtually the whole of NE Tasmania and encompassed the two Newcrest tenements.

They used landsat imagery to complete a fracture analysis of

NE Tasmania (no map sighted) designed to identify dominant structural trends and then integrate the results of this work with existing regional gravity, geology and metallogenic data.

On the basis of this regional review they concluded:

i) gold mineralisation is spatially separate from Sn, W, Cu, Pb, Zn mineralisation in the region.

ii) gold mineralisation is related to NNW structural linears in Mathinna Beds.

iii) gold is genetically associated with granodiorite and some occurs within the contact metamorphic aureole.

iv) many NNW structures exist but only some have associated gold mineralisation.

v) all gold deposits occur in a WNW gold corridor 90km x 25kms from Beaconsfield-Lefroy in the NW to Mangana-Golden Ridge in the SE.

The first four of these conclusions were previously well known features of the area. The fifth conclusion is curious. To place all the gold deposits of NE Tasmania in one WNW "corridor" as opposed to a number of parallel NNW corridors is difficult to support.

Billiton had three deposit models in mind (Fig. 9):

- Sheeted or stockworked quartz vein systems in hornfelsed Mathinna Bed aureoles in strong structural zones near granodiorite intrusions.

- Epithermal Au-Ag mineralisation associated with the St Mary's porphyry.

- Structurally controlled gold in late stage differentiates of Scottsdale and Blue Tier Batholiths.

The latter two models are not applicable to the Newcrest areas.

Billiton selected 40 areas which met most of their exploration and model criteria and further investigated these with reconnaissance mapping, and regional BCL and -80 mesh stream sediment sampling programs.

They regarded the development of prominent contact aureole zones in Mathinna Beds as important to their target search. To this end, they completed a review of contact metamorphism in NE Tasmania (appendix 11), which did not rate the region highly for thermal aureole gold mineralisation. The report appears to genetically link all the gold to granites and places emphasis on gold migration within the thermal aureole.

These genetic and migration models are possibly not applicable or important in NE Tasmania, hence this report possibly adds little to exploration philosophy in the region.

However, the thermal aureole studies combined with regional geochemistry led Billiton to concentrate on two areas:

- Golden Ridges near the Blue Tier Pluton
- Mathinna-Mangana which they identified as gold anomalous (!) and the most extensive hornfelsed roof zone in the region.

Most of their subsequent work was concentrated on the Golden Ridges area, which lies off the NE corner of E.L. 22/92.

In 1991, they entered into an agreement with Aureole N.L., American Horizon Resources Inc., and Federation Resources N.L., who jointly held E.L. 58/88 over the Golden Ridge area.

In this area, Mathinna Beds have been intruded by the Poimena Pluton and the Pyengana Granodiorite. Scattered gold mineralisation occurs in a one kilometre wide zone of hornfelsed sediments which have historically been prospected by a variety of shafts, trenches and adits.

They completed a one sample/sq. kilometre BCL stream sediment survey and decided to relinquish the western half of the Licence in early 1992 and concentrate further work on the Brilliant Creek area.

It is not known if Billiton are still involved with E.L. 58/88

5.2.18 **Department of Mines:**

The Department of Mines has been an active explorer in the Alberton-Mangana region since the 1850s.

Their work can be broadly grouped under three headings:

- Mine and district inspections
- Core drilling programs
- Regional studies.

Mine and district inspection reports are numerous (appendix 2). Collectively they provide a useful insight into the geology and prospectivity of individual mining operations and mining districts.

The more comprehensive district reports include:

- Alberton: Blake 1933 (Ref. appendix 2/4).
  Hughes 1952 (2/23).
  Twelvetrees 1900 (2/56/59).

- Dans Rivulet: Hughes 1947 (2/20).
  Twelvetrees 1904 (2/58).

- Mathinna: Finucane 1935 (2/13).
  Henderson 1941 (2/16).
  Twelvetrees 1906,1907 (60, 61, 63).

- Mangana: Finucane 1935 (2/13).
  Twelvetrees 1907 (2/62).

References to descriptions of individual mines are contained in the deposit data sheets presented in Appendix 5 (Alberton), 6 (Mathinna) and 7 (Mangana).

Core drilling has been undertaken by the Department for two basic reasons:

- test extensions of known deposits
- evaluate geological concepts.

A list of Departmental drilling appears as Appendix 3. Holes which refer to the Newcrest tenements are marked with a full dot while those in adjacent areas are marked with an open dot. This list is neither up to date nor complete because, until recently, private drilling undertaken on Mining Leases did not have to be reported to the Department. Hence much of the drilling completed by both private companies and the Department on the New Golden Gate (underground and surface) is not reported or recorded and logs are difficult to locate.

Departmental **lode extension drilling** programs were completed in the 1930's on the Krushka, Prendergast and Long Struggle mines (Alberton) and on the New Golden Gate (Mathinna); in the 1950s on O'Briens Mine (Dans Rivulet); in the 1960s on the Starlight-Carnegie (Dans Rivulet).

The drilling at **Krushka** and **Prendergast** failed to intersect significant mineralisation or reef structures (Fig. 3).

Of the three underground holes at **Long Struggle**, one was abandoned, another may have drilled parallel to the target and the third intersected north extensions of both the Long Struggle and Caxton reefs. The Long Struggle reef assayed 15g/t over 2.5m (horizontal) and the Caxton 3.6g/t over 0.6m (horizontal).

Records of drilling at the New Golden Gate are difficult to locate, but it is known that several holes were completed north and south of the

mine looking for reef extensions. This data will probably emerge with persistent effort.

Five holes were completed at the O'Briens Mine in 1954-55. One hole intersected 4.5m 10g/t Au.

Two holes were completed east of O'Briens on the Starlight-Carnegie workings. Results were disappointing.

Following completion of a major study of the Waterhouse-Mangana field by Threader, the Department drilled two holes at Mathinna, two at Dans Rivulet and four at Alberton to **test theories** developed in that study (see below).

The results of this conceptual drilling are unclear because most of the holes have not yet been reported upon. However, it is known that no significant mineralisation was intersected.

The Department has undertaken a number of **regional geological and geophysical studies** in order to highlight the region's potential and assist explorers.

In 1967, Threader completed his MSc thesis on the geology of the Mangana-Waterhouse district. One of his main conclusions was that the gold mineralisation was concentrated adjacent to a major NNW structurally deformed zone, offset at regular intervals by later NE trending cross structures.

This structural control on gold mineralisation has been further refined by later Departmental workers. In Unpublished Report 1989/42, the effects of later NE trending mega kink bands on the earlier NNW cleavage are illustrated (Fig. 6(a) and (b)), and the impact of these intersecting structural trends on the location of mineralisation is discussed in Report 1992/10 (appendix 6).

Recently, the Department commenced a major long term project called NETGOLD (North East Tasmania Gold) designed to more fully understand and promote the gold potential of the area. Data reviews of the Dans Rivulet, Mathinna, Mangana areas (appendix 6, 7) were the first step in this project. Future work has been slowed by Government cutbacks.

The Tasmanian Government has co-operated with the BMR to produce a 1:500,000 aeromagnetic map of NE Tasmania, and in 1989 the Department completed a detailed aeromagnetic survey over the Alberton-Mangana area (Fig. 4 - transparency accompanying this report). A brief Departmental report 1989/19 refers to this survey and concluded:

- The area is underlain by granodiorite at 1-2 kilometre depth.

- Gold zone occurs in a narrow depression in the roof of this granodiorite basement.

APPENDIX 2:

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ANNUAL REPORT
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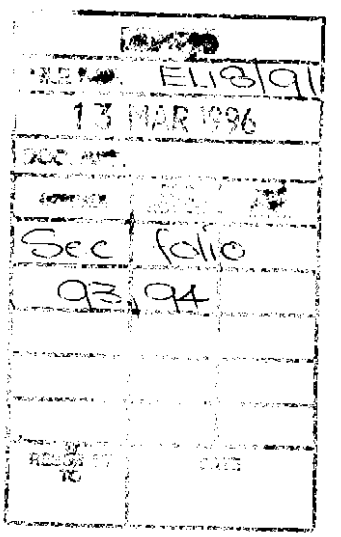

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Grant MacDonald
February 1996
GM609:da

APPENDIX B

Soil Sample Record Sheets and Assay Results - Minlab

RESOLUTE RESOURCES LIMITED

328076

Project Name: TASMANIA Prospect Name: MARIANA Tenement No.:

Sampler: Craig & GARRY Sample Type: SURFACE SOIL Sample Submission No.: K09408

Note: New Area - New Page & New Sample Type - New Page Date: 7/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
375691			WORKINGS 5m AWAY (BIT SCAPE FANS AWAY)	8600	10,000
2			SAMPLE TAKEN 17m NORTH (ABOVE ROAD)	" "	9,950
3				" "	9900
4				" "	9850
5				" "	9800
6				" "	9750
7				" "	9700
8				" "	9650
9				" "	9600
375700				" "	9550
1				" "	9500
2				" "	9450
3				" "	10,050
4				" "	10,100
5				" "	10,150
6			SAMPLE TAKEN 3m SOUTH (DISTURBANCE)	" "	10,200
7				" "	10,250
8				" "	10,300
9				" "	10,350
375710				" "	10,400
1				" "	10,450
2				" "	10,500
3			SAMPLE TAKEN 8m EAST (OLD TRACK)	" "	10,550
4				" "	10,600
5				8500	10,000
6				" "	9,950
7				" "	9900
8				" "	9850
9				" "	9800
375720			SAMPLE TAKEN 10m S (WORKINGS)	" "	9750

RESOLUTE RESOURCES LIMITED

328077

Project Name: TANAMA Prospect Name: MANGANA Tenement No.:

Sampler: CRAIG + GARRY Sample Type: SUBSURFACE SOIL Sample Submission No.: K094058

Note: New Area - New Page & New Sample Type - New Page Date: 7/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
375721				8500	9700
2				"	9650
3				"	9600
4			SAMPLE TAKEN 5m SOUTH (DIGGINGS)	"	9550
5				"	9500
6				"	9450
7			SAMPLE TAKEN 20m EAST (SHAFT & TAILINGS)	"	10,050
8				"	10,100
9				"	10,150
375730				"	10,200
1				"	10,250
2				"	10,300
3				"	10,350
4				"	10,400
5				"	10,450
6				"	10,500
7			SAMPLE TAKEN 5m NORTH (OLD WORKINGS)	"	10,550
8				8400	10,050
9				"	10,100
375740				"	10,150
1				"	10,200
2				"	10,250
3				"	10,300
4			SAMPLE TAKEN 7m EAST (CREEK)	"	10,350
5				"	10,400
6				"	10,450
7				"	10,500
8				"	10,550
9				"	10,000
375750				"	9950

RESOLUTE RESOURCES LIMITED 328078

Project Name: TASMANIA Prospect Name: MAN-ANA Tenement No.:

Sampler: CRAIG & GARRY Sample Type: SURFACE SOIL Sample Submission No.: K0708

Note: New Area - New Page & New Sample Type - New Page Date: 8/12/97

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
375751				8400	9900
2				"	9850
3			SAMPLE TAKEN 15mN BELOW TREE (TAILINGS ABOVE)	"	9800
4			" " " 12mS " " " " " "	"	9750
5			" " " " 10mN " " " " "	"	9700
6				"	9650
7			SAMPLE TAKEN 5mS, (DIGGINGS)	"	9600
8				"	9550
9				"	9500
375760				"	9450
1				8700	10,000
2				"	9950
3			SAMPLE TAKEN 5mS BELOW TREE	"	9900
4				"	9850
5				"	9800
6			SAMPLE TAKEN 4mSE, (WORKINGS)	"	9750
7				"	9700
8			SAMPLE TAKEN 5mS (CREEK)	"	9650
9				"	9600
375770				"	9550
1				"	9500
2				"	9450
3				"	10,050
4				"	10,100
5				"	10,150
6				"	10,200
7				"	10,250
8				"	10,300
9				"	10,350
375780				"	10,400

RESOLUTE RESOURCES LIMITED 328079

Project Name: TASMANIA Prospect Name: MANGANA Tenement No.:

Sampler: CRAIG & GARRY Sample Type: SURFACE SOIL Sample Submission No.: KG408

Note: New Area - New Page & New Sample Type - New Page Date: 8/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
375781				8800	10,450
2				"	10,500
3				"	10,550
4				"	10,600
5				8900	10,000
6			SAMPLE TAKEN 7m NE (WORKINGS)	"	9950
7				"	9900
8				"	9850
9				"	9800
375790			None	"	9750
1				"	9700
2			5M NORTH (BELOW TREE)	"	9650
3				"	9600
4				"	9550
5				"	9500
6				"	9450
7				"	9400
8				8900	10050
9			4M SOUTH (ROCKY OUTCROP)	"	10100
375800				"	10150
1				"	10200
2				"	10250
3				"	10300
4				"	10350
5				"	10400
6				"	10450
7				"	10500
8				"	10550
9				"	10600
375810			10M WEST (ROAD)	8800	10050 ~~10000~~

RESOLUTE RESOURCES LIMITED

328080

Project Name: TASMANIA Prospect Name: MANGANA Tenement No.:

Sampler GARY GRANT Sample Type: SUBSURFACE SOIL Sample Submission No.: KG4/98

Note: New Area - New Page & New Sample Type - New Page Date: 9/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
375811				8500	10100
2				"	10150
3				"	10200
4			2M NORTH (ROCKY OUTCROP)	"	10250
5				"	10300
6				"	10350
7				"	10400
8				"	10450
9				"	10500
375820				"	10550
1				"	10600
2				8800	10000
3				"	9950
4				"	9900
5			3M SOUTH (BELOW TREE)	"	9850
6				"	9800
7			3M WEST (BELOW TREE)	"	9750
8				"	9700
9			15M SOUTH EAST (ABOVE ALLUVIAL)	"	9650
375830			" "	"	9600
1			20M NORTH (ALLUVIAL/GROUND DISTURBANCE)	"	9550
2				"	9500
3				"	9450
4				9400	10050
5				"	10100
6				"	10150
7				"	10200
8				"	10250
9				"	10300
375840				"	10350

RESOLUTE RESOURCES LIMITED

328081

Project Name: TASMANIA Prospect Name: MANGANA. Tenement No.:

Sampler: CRAIG GRANT Sample Type: SUBSURFACE SOILS Sample Submission No.: K09403

Note: New Area - New Page & New Sample Type - New Page Date: 10 / 12 / 94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
375841				9400	1040
2				"	10450
3				"	10500
4			ROCKY OUTCROP	"	10550
5			"	"	10600
6			"	"	10650
7				9300	10050
8				"	10100
9				"	10150
375850				"	10200
1				"	10250
2				"	10300
3				"	10350
4				"	10400
5				"	10450
6				"	10500
7				"	10550
8				"	10600
9				"	10650
375860				9300	10000
1			8M SOUTH (DEAD TREE) OLD WORKINGS	"	9950
2				"	9900
3			6M SOUTH " "	"	9850
4				"	9800
5				"	9750
6			8M NORTH " "	"	9700
7				"	9650
8				"	9600
9				"	9550
375870				"	9500

RESOLUTE RESOURCES LIMITED

328082

Project Name: TASMANIA Prospect Name: MANGANA / BUCKLANDS Tenement No.:

Sampler: GARY + GRANT Sample Type: SUBSURFACE SOILS Sample Submission No.: K094CR

Note: New Area - New Page & New Sample Type - New Page Date: 10/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
375871				93CC	9450
2				"	9400
3				11600	8000
4				"	7950
5			5M NORTH (WORKINGS)	"	7900
6				"	7850
7				"	7800
8				"	7750
9			BASE OF TREE (DOWNHILL	"	7700
375880				"	7650
1				"	7600
2				"	7550
3				11600	8050
4				"	8100
5				"	8150
6				"	8200
7				"	8250
8			20M WEST (SOIL SAMPLE / OLD WORKINGS?)	"	8300
9			" "	"	8350
375890			5M NORTH " "	"	8400
1				"	8450
2				"	8500
3				"	8550
4				"	8600
5				11700	8000
6			10M SOUTHWEST (COSTEAN / ROAD)	"	7950
7				"	7900
8				"	7850
9				"	7800
375900				"	7750

RESOLUTE RESOURCES LIMITED 328083

Project Name: TASMANIA Prospect Name: MATHINA INFILL +BLACKBOY Tenement No.: [redacted]

Sampler: CARY & GRANT Sample Type: SUBSURFACE SOIL Sample Submission No.: K0941D

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
376021				4800	4475
2				" "	4525
3				" "	4575
4				" "	4625
5				" "	4675
6				" "	4725
7				" "	4775
8				" "	4825
9				4700	4875
376030				" "	4725
1				" "	4675
2				" "	4625
3				" "	4575
4				" "	4525
5			SAMPLE TAKEN 7M SOUTH EAST. (DISTURBANCE)	" "	4475
6				4600	4575
7				" "	4625
8				" "	4675
9				" "	4725
376040			SAMPLE TAKEN 6M SOUTH (ROAD)	" "	4825
1				" "	4875
2				" "	4925
3				4500	4925
4				" "	4875
5				" "	4825
6				" "	4775
7				4400	4825
8			MATHINNA	" "	4875
9				" "	4925
376050			* START OF BLACKBOY RIDGE ↓ MANGANA	10000	9550

RESOLUTE RESOURCES LIMITED

328084

Project Name: TASMANIA Prospect Name: BLACKBOY RIDGE Tenement No.:

Sampler: GARY, MIKE & GRANT Sample Type: SUBSURFACE SOIL Sample Submission No.: K09410

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
376051				10000	9500
2				"	9450
3				"	9400
4				"	9350
5				"	9300
6				"	9250
7				"	9200
8				"	9150
9				"	9100
376060				"	9050
1				10100	9700
2				"	9650
3				"	9600
4				"	9550
5				"	9500
6				"	9450
7				"	9400
8				"	9350
9				"	9300
376070				"	9250
1				"	9200
2				"	9150
3				"	9100
4				"	9050
5				10200	9700
6				"	9650
7				"	9600
8				"	9550
9				"	9500
376080				"	9450

RESOLUTE RESOURCES LIMITED

328085

Project Name: TASMANIA Prospect Name: BUCKBOY RIDGE Tenement No.:

Sampler: GARY, MIKE & GRANT Sample Type: SUBSURFACE SOIL Sample Submission No.: K09400

Note: New Area - New Page & New Sample Type - New Page Date: 18 / 12 / 94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
376081				10200	9400
2				"	9350
3				"	9300
4				"	9250
5				"	9200
6				"	9150
7				"	9100
8				"	9050
9				"	9750
376090			SAMPLE SUSPECT, ADD 6m TO THE SIDE.	"	9800
1				"	9850
2				"	9900
3				"	9950
4				"	10000
5				"	10050
6				10400	9700
7				10400	9750
8				"	9800
9				"	9350
376100				"	9900
1				"	9950
2				"	10000
3				"	10050
4				"	10100
5				"	10150
6			TAKEN 10m NW (OLD ROAD)	"	10200
7				"	10250
8				"	10300
9				"	10350
376110				"	10400

Project Name: TASMANIA Prospect Name: BLACKBOY RIDGE Tenement No.: 326036

Sampler: CRAIG & MIKE Sample Type: SUBSURFACE Sample Submission No.: K0940

Note: New Area - New Page & New Sample Type - New Page Date: 15/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
376111				10400	9650
2				" "	9600
3				" "	9550
4				" "	9500
5				" "	9450
6				" "	9400
7				" "	9350
8				" "	9300
9				" "	9250
376120				" "	9200
1				" "	9150
2				10600	9700
3				" "	9650
4				" "	9600
5				" "	9550
6				" "	9500
7				" "	9450
8			PEG MOVED 5m W (ROAD)	" "	9395
9				" "	9350
376130				" "	9300
1		↑	MAINGANA	" "	9250
2			C HORIZON TAKEN (ALLUVIUM PIT 7m W)	" "	9200
3			C HORIZON TAKEN FROM HORNBLENDITE EXPOSURE IN CUTTING CHINAMANS HILL INFILL, TAKEN 10m W, ?	10700	3430
4	MATHINNA	↓	TAKEN 3m SW (OLD ROAD)	" "	3375
5				" "	3325
6			TAKEN IN PINE PLANTATION, DEEP SAMPLE TAKEN	" "	3275
7			DEEP SAMPLE TAKEN (PINE PLANTATION)	10600	3325
8			TAKEN 12m E (ROAD)	" "	3375
9				" "	3425
376140			SAMPLE TAKEN OUT OF ROAD EMBANKMENT CUTTING (C HORIZON)	" "	3470

RESOLUTE RESOURCES LIMITED

328087

Project Name: TASMANIA Prospect Name: BLACKBOY RIDGE Tenement No.:

Sampler: CRAIG & ADRIAN Sample Type: SUBS. GRACE SOIL Sample Submission No.: K6941

Note: New Area - New Page & New Sample Type - New Page Date: 20 / 12 / 94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
376171				10800	9450
2			TAKEN 15m NW (GULLY)	"	9400
3				"	9350
4				"	9300
5			TAKEN 5m N (OUTCROP)	"	9250
6				"	9200
7			ANNUAL WORKINGS TO WEST, TAKEN 10m N	"	9150
8				11000	9700
9				"	9650
376180				"	9600
1			PEG MOVED 0.5m E (OUTCROP)	"	9550
2			TAKEN 5m W (GULLY)	"	9500
3				"	9450
4				"	9400
5				"	9350
6				"	9300
7				"	9250
8				"	9200
9				11600	9700
376190				"	9650
1				"	9600
2				"	9550
3				"	9500
4				"	9450
5			TAKEN 15m SE (GULLY)	"	9400
6				"	9350
7			TAKEN 7m E (DEBRIS)	"	9300
8				11000	9750
9				"	9800
376200				"	9850

RESOLUTE RESOURCES LIMITED

Project Name: TASMANIA Prospect Name: MATHINA + MANGANA C horizon Tenement No.: 328088

Sampler: Tim H. & Adrian Sample Type: Sub surface soil + C Horizon Sample Submission No.: K0941

Note: New Area - New Page & New Sample Type - New Page Date: 22/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
376201			BLACKBOY RIDGE CONT	11000	9900
2				" "	9950
3				" "	10000
4			TAKEN 0.m SW (POSSIBLE LANDSLIDE HEAD)	" "	10050
5				" "	10100
6			TAKEN 6.m NW (GULLY)	" "	10150
7				" "	10200
8				11300	9750
9				" "	9800
376210			TAKEN 4.m SE (GULLY)	" "	9850
1				" "	9900
2				" "	9950
3				" "	10000
4			TAKEN 4.m SOUTH	" "	10050
5			LIKELY TO BE CONTAMINATED (TAKEN ON OLD MULLOC HEAP)	" "	10100
6				" "	10150
7			↑ MANGANA	" "	10200
8				" "	10250
9			MATHINNA C-HORIZON ↓ ↓ MATHINNA	7000	4600
376220	C-HORIZON ↓			" "	4650
1				" "	4700
2			MATHINA C-HORIZON T	7000	4750
3				"	4800
4				"	4550
5				"	4900
6				"	4950
7				6900	4650
8				"	4700
9				"	4750
376230				"	4800

RESOLUTE RESOURCES LIMITED

328089

Project Name: TASMANIA Prospect Name: MANGANA Tenement No.:

Sampler: JAMES + MIKE Sample Type: SUBSURFACE SOIL Sample Submission No.: K09408

Note: New Area - New Page & New Sample Type - New Page Date: 8 / 12 / 94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
377431					
2					
3			NOT USED		
4					
5					
6					
7					
8					
9				8000	10000
377440				"	9950
1				"	9900
2				"	9850
3				"	9800
4				"	9750
5				"	9700
6			Void	"	9650
7				"	9600
8				"	9550
9				"	9500
377450				"	9450
1				"	9400
2				"	10050
3				"	10100
4				"	10150
5				"	10200
6				"	10250
7				"	10300
8				"	10350
9			SAMPLE 3M EAST	"	10400
377460				"	10450

RESOLUTE RESOURCES LIMITED

328090

Project Name: TASMANIA Prospect Name: MANGANA Tenement No.:

Sampler: JAMES + MIKE Sample Type: SUBSURFACE SOIL Sample Submission No.: K09408

Note: New Area - New Page & New Sample Type - New Page Date: 9 / 12 / 94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
377461			SAMPLE 4M EAST DUE TO CREEK	8000	10500
2				7800	10000
3				"	9950
4				"	9900
5				"	9850
6				"	9800
7				"	9750
8				"	9700
9				"	9650
377470			None	"	9600
1				"	9550
2				"	9500
3				"	9450
4			SAMPLE 9M NORTH/NORTH-WEST ABOVE COSTEAN	"	10050
5				"	10100
6				"	10150
7				"	10200
8			SAMPLE 5M SOUTH ABOVE COSTEAN	"	10250
9				"	10300
377480				"	10350
1				"	10400
2				"	10450
3				"	10500
4				7900	10000
5				"	9950
6			SAMPLE 9M SOUTH DUE TO ROAD	"	9900
7			" 4M SOUTH ABOVE ROAD	"	9850
8				"	9800
9				"	9750
377490				"	9700

RESOLUTE RESOURCES LIMITED

328091

Project Name: TASMANIA Prospect Name: MANGANA Tenement No.:

Sampler: JAMES + MIKE Sample Type: SUBSURFACE SOIL Sample Submission No.: KD940R

Note: New Area - New Page & New Sample Type - New Page Date: 10 / 12 / 94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
377491				11	9650
2			SAMPLE 4M SOUTH AWAY FROM ROAD	11	9600
3				11	9550
4				11	9500
5				11	9450
6			SAMPLE 15M NORTH TO SIDE OF TAILINGS	11	9400
7				7900	10,050
8				11	10100
9				11	10150
377500				11	10200
1				11	10250
2				11	10300
3				11	10350
4				11	10400
5				11	10450
6				11	10500
7				9000	10000
8				11	9950
9				11	9900
377510				11	9850
1				11	9800
2				11	9750
3			SAMPLE 4M NORTH TO SIDE OF COSTEAN	11	9700
4				11	9650
5				11	9600
6				11	9550
7				11	9500
8				11	9450
9				11	10050
377520			SAMPLE 10M NORTH-WEST TO SIDE + ABOVE COSTEANS	11	10100

RESOLUTE RESOURCES LIMITED

328092

Project Name: TASMANIA Prospect Name: MANGANO Tenement No.:

Sampler: JAMES + MIKE Sample Type: SUBSURFACE SOIL Sample Submission No.: K09408

Note: New Area - New Page & New Sample Type - New Page Date: 10 / 12 / 94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
377521				9000	10150
2				"	10200
3				"	10250
4				"	10300
5				"	10350
6				"	10400
7				"	10450
8				"	10500
9				"	10550
377530				"	10600
1				9100	10000
2				"	9950
3			SAMPLE 4M NORTH ABOVE COSTEAN	"	9900
4				"	9850
5				"	9800
6				"	9750
7				"	9700
8			SAMPLE 7M SOUTH AWAY FROM COSTEAN(TO SIDE)	"	9650
9				"	9600
377540				"	9550
1				"	9500
2			NOT USED		
3			SAMPLE 3M SOUTH TO SIDE OF COSTEAN	9100	10050
4				"	10100
5			SAMPLE 4M EAST ABOVE SUSPECT WORKING	"	10150
6				"	10200
7				"	10250
8				"	10300
9				"	10350
377550				"	10400

RESOLUTE RESOURCES LIMITED

328093

Project Name: TASMANIA Prospect Name: MANGANA Tenement No.:

Sampler: JAMES + MIKE Sample Type: SUBSURFACE SOIL Sample Submission No.: K09408

Note: New Area - New Page & New Sample Type - New Page Date: 11 / 12 / 94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
377551				9100	10450
2				"	10500
3				"	10550
4				"	10600
5				9200	10000
6				"	9950
7			SAMPLE 15M EAST TO SIDE OF ADIT TAKINGS + COSTEANS	"	9900
8			" MAYBE SUSPECT BELOW OLD TRACK FROM WORKING	"	9850
9				"	9800
377560				"	9750
1				"	9700
2				"	9650
3				"	9600
4			SAMPLE 8M SOUTH/SOUTH-EAST TO SIDE OF COSTEANS	"	9550
5				"	9500
6				"	9450
7				"	9400
8			SAMPLE 3M SOUTH (PEG GROUND ON WOOD DECAY)	"	10050
9				"	10100
377570				"	10150
1				"	10200
2				"	10250
3				"	10300
4				"	10350
5				"	10400
6				"	10450
7				"	10500
8				"	10550
9				"	10600
377580				"	10650

RESOLUTE RESOURCES LIMITED

328091

Project Name: TASMANIA Prospect Name: MANGANA Tenement No.:

Sampler: GRAHAM SMART Sample Type: SUBSURFACE SOILS Sample Submission No.: K09406/08

Note: New Area - New Page & New Sample Type - New Page Date: 5/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
377731				11000	8000
2			20M NORTH (ROADS)	"	8050
3			10M EAST (ROAD)	"	8100
4				"	8150
5				"	8200
6				"	8250
7				"	8300
8				"	8350
9			Road	"	8400
377740				"	8450
1				"	8500
2			25M EAST (ROAD)	"	8550
3				11100	8000
4			5M EAST (COSTEAN)	"	7950
5				"	7900
6				"	7850
7			20M ~~EAST~~ (ROAD) K09406	"	7800
8			K09408	7300N	10000E
9			5m West (Workings)	"	9950E
377750				"	9900
1				"	9850
2				"	9800
3				"	9750
4				"	9700
5				"	9650
6				"	9600
7				7400	10,000
8			2m North (Fallen Tree)	"	10,050
9					10,100
377760					10,150

RESOLUTE RESOURCES LIMITED

328095

Project Name: Tasmania Prospect Name: Mangana Tenement No.:

Sampler: Tim H, Adrian, Craig Sample Type: Subsurface Soil Sample Submission No.: K0408

Note: New Area - New Page & New Sample Type - New Page Date: 6/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
377761				7400	10200
2				7400	10250
3				"	9950
4				"	9900
5				"	9850
6				"	9800
7				"	9750
8				"	9700
9				"	9650
377770				"	9600
1			None	7500	10,000
2				"	10,050
3				"	10,100
4				"	10,150
5				"	10,200
6				"	10,250
7			2m East (tree trunk)	"	10,300
8			3m North (thick scrub)	"	10,350
9			5m East (surface scree)	"	10,400
377780				"	9,950
1				"	9,900
2				"	9,850
3				"	9,800
4				"	9,750
5				"	9,700
6				"	~~9,750~~ 9650
7				"	9,600
8				7600	10,000
9				7600	10,050
377790				"	10,100

RESOLUTE RESOURCES LIMITED

328036

Project Name: Tasmania Prospect Name: Mangana Tenement No.:

Sampler: Tim & Grant Sample Type: Subsurface Soil Sample Submission No.: K01403

Note: New Area - New Page & New Sample Type - New Page Date: 7/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
377791				7600	10150
2				"	10200
3				"	10250
4				"	10300
5				"	10350
6				"	10400
7				"	10450
8				"	9950
9			1m East (Disturbed Ground)	"	9900
377800				"	9850
1			10m South (Alluvium)	"	9800
2			20m South (Alluvium)	"	9750
3			10m North (Alluvium	"	9700
4				"	9650
5				"	9600
6				"	9550
7				"	9500
8				7700	10,000
9				"	10,050
377810			5m South (Disturbed)	"	10,100
1				"	10,150
2				"	10,200
3				"	10,250
4				"	10,300
5				"	10,350
6				"	10,400
7				"	10,450
8				"	10500
9				"	9950
377820			5m North (Fallen tree)	"	9900

RESOLUTE RESOURCES LIMITED

328097

Project Name: Tasmania Prospect Name: Manganca Tenement No.:

Sampler: Tim & Grant Sample Type: Subsurface Soil Sample Submission No.: KD408

Note: New Area - New Page & New Sample Type - New Page Date: 8/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
377821			2m North (Burrows)	7700	9850
2				"	9800
3				"	9750
4			3m North (Disturbed)	"	9700
5				"	9650
6			[redacted] Base of tree	"	9600
7				"	9550
8				"	9500
9				"	9450
377830			5m South East (workings)	8100	10,000
1				"	10,050
2			5m South (workings)	"	10,100
3				"	10,150
4			3m South (Scree)	"	10,200
5				"	10,250
6			2m South (Borrow)	"	10,300
7				"	10,350
8				"	10,400
9			Moved	"	10,450
377840				"	10,500
1				"	9950
2			2m South (below tree)	"	9900
3				"	9850
4			15m ESE (eastern, road, workings)	8100	9800
5			15m SE (creek Alluvium)	"	4750
6			15m SE (" ")	"	9700
7			25m NW (" ")	"	9650
8			20m SE (" ")	"	9600
9			25m SE (" ")	"	9550
377850			30m SE (" ")	"	9500

RESOLUTE RESOURCES LIMITED

328093

Project Name: Tasmania Prospect Name: Magnus Tenement No.:

Sampler: Tim & Craig Sample Type: Sub surface Soil Sample Submission No.: K0940

Note: New Area - New Page & New Sample Type - New Page Date: 9/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
377851				8100	9450
2			Actual Co-ordinates 8200N, 10,000E	~~8200~~	~~10,000~~
3				8200	10,000
4			Sample taken 0-5, (mullet dump)	" "	10,100
5			road 25-5, sample taken behind tree	" "	10,150
6				" "	10,200
7				" "	10,250
8				" "	10,300
9				" "	10,350
377860			None	" "	10,400
1				" "	10,450
2				" "	10,500
3				" "	9950
4			Sample taken Stonemason/Forest cutting	" "	9900
5				" "	9850
6			Sample taken 40-NW (open stopes)	" "	9800
7				" "	9750
8				" "	9700
9			Sample taken 5-N, at base of tree	" "	9650
377870				" "	9600
1				" "	9550
2				" "	9500
3				" "	9450
4				" "	9400
5				8300	10,000
6				" "	10,050
7			Sample taken 3-SE behind tree	" "	10,100
8				" "	10,150
9				" "	10,200
377880			Sample taken 4-NW (outcrop)	" "	10,250

RESOLUTE RESOURCES LIMITED

328099

Project Name: TASMANIA Prospect Name: HANGING Tenement No.:

Sampler: TIM & CRAIG Sample Type: SUBSURFACE SOIL Sample Submission No.: KO940

Note: New Area - New Page & New Sample Type - New Page Date: 9/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
377881				8300	10,300
2				"	10,350
3				"	10,400
4				"	10,450
5				"	10,500
6			pg. road cut because of road	"	10,553
7			sample taken 5m NW (contour)	"	9,950
8				"	9900
9				"	9850
377890			Sample taken 20m N (adit)	"	9800
1				"	9750
2				"	9700
3				"	9650
4			None	"	9600
5				"	9550
6				"	9500
7				"	9450
8			slope corrected easting (ie. topographic)	"	9425
9			(Bucklands hill)	11300	8000
377900				"	7950
1				"	7900
2				"	7850
3				"	7800
4				"	7750
5				"	7700
6				"	8050
7			Sample taken 10m NW (workings)	"	8100
8			Sample taken 10m SE (workings)	"	8150
9				"	8200
377910				"	8250

RESOLUTE RESOURCES LIMITED

Project Name: Tasmania Prospect Name: Mathinna Tenement No.: ~~3~~ 224600

Sampler: Tim + Adrian Sample Type: Sub-surface soil Sample Submission No.: K09406/8

Note: New Area - New Page & New Sample Type - New Page Date: 25/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
373571			22m N	3900	5600
2				"	5650
3				"	5700
4			18.5m ENE across road	"	5750
5				3600	5200
6			3m N	"	5150
7				"	5100
8			11m NNW	"	5050
9				"	5000
373580				"	4950
1				"	4900
2				"	4850
3				"	4800
4				"	4750
5			4m NNW	"	4700
6				"	4650
7			12m N across road	3600	5250
8				"	5300
9			16m N	"	5350
378590				"	5400
1				"	5450
2			15m N	"	5500
3				"	5550
4				"	5600
5				"	5650
6			K09406	"	5700
7			Nanjana. K09408	9900	9750
8			24m SSW above house site	9850	9750
9				9900	9900
378600				9900	9850

9875E

RESOLUTE RESOURCES LIMITED

326101

Project Name: Tasmania Prospect Name: Manganese Mahinna Tenement No.: ~~E96~~

Sampler: Tim + Gary Sample Type: Subsurface soil Sample Submission No.: K0940S

Note: New Area - New Page & New Sample Type - New Page Date: 7/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
378601				9900	9800
2				"	10050
3			5m ENE above road	"	10100
4			12m S above shaft + dump	"	10150
5			~~12m S above shaft + dump~~	9800	10000 ~~10000~~
6			5m W	"	9950 ~~10050~~
7				"	9900 ~~10100~~
8				"	9850 ~~10150~~
9				"	9800 ~~9950~~
378610			8m W out of gully	"	10050 ~~9900~~
1			10m E above working	"	10100 ~~9850~~
2			6m ~~S~~ E	"	10150 ~~9800~~
3				9700	10000
4				"	9950 ~~10050~~
5			Done	"	9900 ~~10100~~
6				"	9850 ~~10150~~
7				"	9800
8				"	10050
9				"	10100
378620				"	10150
1				10000	10050
2			12m S	"	10100
3			6m S	"	10150
4			9m S	"	10200
5			8m SW	"	10250
6				"	10300
7				"	10350
8				"	10400
9			9m N away from road	10000	10450
378630				"	10500

RESOLUTE RESOURCES LIMITED

328102

Project Name: Tasmania Prospect Name: Mangana Tenement No.:

Sampler: Tim + Adrian Sample Type: Sub Surface Soil Sample Submission No.: K09408

Note: New Area - New Page & New Sample Type - New Page Date: 8/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
378631				10000	10550
2				"	10600
3				"	10650
4				"	10700
5			16m ENE below dump site but under irrigation	9900	10250
6				"	10250
7				"	10300
8				"	10350
9				"	10400
378640				"	10450
1				"	10500
2				"	10550
3				"	10600
4				"	10650
5				"	10700
6				9800	10200
7				"	10250
8				"	10300
9				"	10350
378650				"	10400
1				"	10450
2				"	10500
3				"	10550
4				"	10600
5				"	10650
6				"	10700
7				9900	9750
8			Sample taken 13m S across road	"	9700
9				9800	9750
378660				"	9700

RESOLUTE RESOURCES LIMITED

328103

Project Name: Tasmania Prospect Name: Mangana Tenement No.:

Sampler: Tim + Adrian Sample Type: Soil surface soil Sample Submission No.: K09403

Note: New Area - New Page & New Sample Type - New Page Date: 8/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
378661				9800	9650
2				9700	9800
3				"	10250
4				"	10300
5				"	10350
6				"	10400
7				"	10450
8				"	10500
9				"	10550
378670				"	10600
1				"	10650
2				"	10700
3				9700	9750
4				"	9700
5				"	9650
6				"	9600
7				"	9550
8				"	9500
9				9600	10000
378680				"	10050
1				"	10100
2				"	10150
3				"	10200
4				"	10250
5				"	10300
6				"	10350
7				"	10400
8				"	10450
9				"	10500
378690				"	10550

RESOLUTE RESOURCES LIMITED

328104

Project Name: Tasmania Prospect Name: Mangana Tenement No.:

Sampler: Tim & Adrian Sample Type: Subsurface soil Sample Submission No.: KC9403

Note: New Area - New Page & New Sample Type - New Page Date: 9/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
378691				9600	10600
2				"	10650
3				"	10700
4				"	9950
5				"	9900
6				"	9850
7				"	9800
8				"	9750
9				"	9700
378700				"	9650
1				"	9600
2				"	9550
3				"	9500
4				"	9450
5				"	9402
6				9500	10000
7			10m ESE away Loco shaft	"	10050
8				"	10100
9				"	10150
378710				"	10200
1				"	10250
2				"	10300
3				"	10350
4				"	10400
5				"	10450
6				"	10500
7				"	10550
8				"	10600
9				"	10650
378720				9500	9950

RESOLUTE RESOURCES LIMITED

328105

Project Name: Tasmania Prospect Name: Mangana Tenement No.:

Sampler: Tim - Adrian Sample Type: Subsurface soil Sample Submission No.: KC944C

Note: New Area - New Page & New Sample Type - New Page Date: 9/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
378721				9500	9900
2				"	9850
3				"	9800
4				"	9750
5				"	9700
6				"	9650
7				"	9600
8				"	9550
9				"	9500
378730				"	9450
1				9400 ~~10000~~	10000 ~~9900~~
2			4m NNE out of gully	"	9950
3			2m N	"	9900
4			Hack shale outcrop	"	9850
5			7m N out of gully	"	9800
6				"	9750
7				"	9700
8				"	9650
9				"	9600
378740				"	9550
1			8m S away from hill mallak loop	"	9500
2			5m S	"	9450
3				"	9400
4				11100	8050
5				"	8100
6				"	8150
7				"	8200
8				"	8250
9				"	8300
378750			6m NW away from road	"	8350

RESOLUTE RESOURCES LIMITED

328106

Project Name: TASMANIA Prospect Name: ~~BLACKBOY RIDGE~~ MANGANA 4-HORIZON Tenement No.:

Sampler: GARY & TIM Sample Type: ~~SURFACE SOIL~~ Sample Submission No.: K09410 K09411

Note: New Area - New Page & New Sample Type - New Page Date: 18/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
378991				10700	9700
2				" "	9650
3				" "	9600
4				" "	9550
5				" "	9500
6				" "	9450
7				" "	9400
8				" "	9350
9	MANGANA A-HORIZON		SAMPLE TAKEN 5M ⊞ NORTH. (ROAD)	" "	9300
379000	MATHINNA C-HORIZON		TRACE QUARTS (CONT. FROM 380300)	4750	4950
1			NOT SIEVED	"	4975
2			8M EAST (OLD WORKING) ~~K0941~~	"	5000
3				"	5025
4				"	5050
5				"	5075
6				"	5100
7				"	5125
8				"	5150
9			ABUN. QUARTS	4850	5125
379010				"	5100
1			TRACE QUARTS	"	5075
2				"	5050
3			TRACE QUARTS	"	5025
4			NOT SIEVED	"	5000
5			" " — TRACE QUARTS.	"	4975
6			" " — MINOR "	4950	4975
7			" "	"	5000
8			" " — MINOR QUARTS	"	5025
9			" " — " "	"	5050
379020			MINOR QUARTS	"	5075

RESOLUTE RESOURCES LIMITED 328107

Project Name: TASMANIA Prospect Name: BLACK BOY RIDGE + MATHINNA. Tenement No.:

Sampler: GARY & TIM Sample Type: SUBSURFACE SOIL Sample Submission No.: 1009410

Note: New Area - New Page & New Sample Type - New Page Date: 18 / 12 /94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
378961			Assumed C-HORIZON	~~7200~~ 7100	4250
2				"	4200
3			↑ MATHINNA	"	4150
4				"	4100
5			↓ BLACKBOY RIDGE	10500	9700
6				" "	9750
7				" "	9800
8				" "	9850
9				" "	9900
378970				" "	9950
1				" "	10000
2				" "	10050
3				" "	10100
4				" "	10150
5				" "	10200
6				" "	10250
7				" "	10300
8				" "	10350
9				" "	10400
378980				" "	9650
1			SAMPLE TAKEN 6M WEST (ROAD)	" "	9600
2				" "	9550
3				" "	9500
4				" "	9450
5				" "	9400
6				" "	9350
7				" "	9300
8				" "	9250
9				" "	9200
378990			SAMPLE TAKEN 6M SOUTH (SUSPECT NEAR CREEK)	" "	9150

RESOLUTE RESOURCES LIMITED

328103

Project Name: TASMANIA Prospect Name: BLACK BOY RIDGE Tenement No.:

Sampler: ADRIAN & TIM Sample Type: SUBSURFACE SOIL Sample Submission No.: K09410

Note: New Area - New Page & New Sample Type - New Page Date: 18/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
379861				10300	9800
2				"	9850
3				"	9900
4				"	9950
5				"	10000
6				"	10050
7				"	10100
8				"	10150
9				"	10200
379870				"	10250
1				"	10300
2				"	9650
3				"	9600
4				"	9550
5				"	9500
6				"	9450
7				"	9400
8				"	9350
9				"	9300
379880				"	9250
1				"	9200
2				"	9150
3				"	9100
4				10600	9750
5				"	9800
6				"	9850
7				"	9900
8				"	9950
9			6m S (out of gully)	"	10,000
379890				"	10,050

None

RESOLUTE RESOURCES LIMITED

328109

Project Name: Tasmania Prospect Name: Blackboy Ridge Tenement No.:

Sampler: Tim F & Tim H. Sample Type: Subsurface soil Sample Submission No.: K09410 ~~K09411~~

Note: New Area - New Page & New Sample Type - New Page Date: 19/12/[illegible]

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
379891				10600	10100
2				"	10150
3				"	10200
4				"	10250
5				10700	9750
6				"	9800
7			↑ K09410	"	9850
8				"	9900
9			↓ K09411	"	~~9250~~
379900				"	~~10000~~
1				"	~~10050~~
2				"	~~10100~~
3				"	~~10150~~
4				"	~~10200~~
5			~~12m N away from rocklace~~	"	~~10250~~
6				"	~~10300~~
7				11200	~~9700~~
8				"	~~9650~~
9			9600E	"	
379910			12m N away from rocklace 9550E	"	
1			~~9400E~~ 9500E	"	
2			~~9450E~~ 9450E	"	
3			~~9350E~~ 9400E	"	
4			~~9300E~~ 9350E	"	
5			9300E	"	
6			9250E	"	
7			9750E	11200	
8			9800E	"	
9			9850E	"	
379920			5m ~~N away from~~ 9900E	"	

RESOLUTE RESOURCES LIMITED

Project Name: Tasmania Prospect Name: Black Boys Ridge + MATHINNA Tenement No.:

Sampler: TIM + TIM H Sample Type: Subsurface soil + C HORIZON Sample Submission No.: K09411

Note: New Area - New Page & New Sample Type - New Page Date: 21/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
379921				11200	995
2			5m WNW (road)	"	10000
3				"	10050
4				"	10100
5				"	10150
6				"	10200
7				11600	9750
8				"	9800
9				"	9850
379930				"	9900
1				"	9950
2				"	10000
3				"	10050
4				"	10100
5				"	10150
6				"	10200
7			MATHINNA ★ C-HORIZON	7300	4550
8			MATHINNA	" "	4600
9				" "	4650
379940				" "	4700
1				7100	4600
2				" "	4650
3				" "	4750
4				" "	4800
5			15m WEST (PIN ON MULLOCK HEAP)	" "	4850
6			SUSPECT (BELOW MULLOCK HEAP)	" "	4900
7				6700	4800
8				" "	4850
9				" "	4900
50				" "	4950

MANGANA

C-HORIZON

32811-0

RESOLUTE RESOURCES LIMITED

Project Name: TASMANIA Prospect Name: MANGANA/MATHINNA Tenement No.:

Sampler: GARRY + GRANT Sample Type: SUBSURFACE SOIL Sample Submission No.: K09410 K09411

Note: New Area - New Page & New Sample Type - New Page Date: 19 / 12 / 94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
380131				9500	3525
2				"	3475
3				"	3425
4				9600	3375
5				"	3425
6				"	3475
7				"	3525
8				"	3575
9				"	3625
380140				"	3675
1				"	3725
2				"	3775
3				"	3825
4			NOT SENT 19.12.94 K09410	"	3875
5			BLACKBOY RIDGE 20-12-94 K09411	10900	9700
6				" "	9650
7			MANGANA	" "	9600
8				" "	9550
9				" "	9500
380150			SAMPLE TAKEN 15M WEST, NOT SUITABLE AT PIN (BETWEEN CREEK & ROAD)	" "	9450
1				" "	9400
2				" "	9350
3				" "	9300
4				" "	9250
5				" "	9200
6				11300	9700
7				" "	9650
8				" "	9600
9				" "	9550
380160			SAMPLE TAKEN 4M WEST, BELOW TREE (ROAD ABOVE PIN)	" "	9500

328111

RESOLUTE RESOURCES LIMITED

328112

Project Name: TASMANIA Prospect Name: BLACKBOY RIDGE Tenement No.:

Sampler: GARY & GRANT Sample Type: SUBSURFACE SOIL Sample Submission No.: K0941

Note: New Area - New Page & New Sample Type - New Page Date: 20/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
380161				11300	9450
2				" "	9400
3				" "	9350
4				" "	9300
5				11400	9700
6				"	9650
7				"	9600
8				"	9550
9				"	9500
380170			5mN	"	9450
1				"	9400
2				"	9350
3			possibly alluvial	"	9300
4				10900	9750
5				" "	9800
6				" "	9850
7				" "	9900
8				" "	9950
9				" "	10000
380180				" "	10050
1				" "	10100
2				" "	10150
3			SUSPECT (LOAMY SOIL)	" "	10200
4			SUSPECT (LOAMY SOIL)	" "	10250
5				11400	9750
6				" "	9800
7				" "	9850
8				" "	9900
9				" "	9950
380190				" "	10000

RESOLUTE RESOURCES LIMITED

328113

Project Name: TASMANIA Prospect Name: ~~BLACKBOY RIDGE~~ MANGANA A - HORIZON Tenement No.:

Sampler: GARY & GRANT Sample Type: ~~SURFACE SOIL~~ Sample Submission No.: ~~K0941~~ K0941

Note: New Area - New Page & New Sample Type - New Page Date: 21/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
380191				11400	10050
2			DONE	" "	10100
3				" "	10150
4				" "	10200
5	MANGANA A-HORIZON		K09411	" "	10250
6			K09415		
7					
8					
9	MANGANA A-HORIZON		JUBILEE INFILL	4950	4625
380200				"	4650
1				"	4675
2				"	4700
3				"	4725
4				"	4750
5				"	4775
6			5m NORTH WEST - (OLD WORKINGS)	"	4800
7				4850	4450
8				"	4475
9				"	4500
380210			5m WEST - (ROAD)	"	4525
1				"	4550
2				"	4575
3				"	4600
4				"	4625
5				"	4650
6				"	4675
7				"	4700
8				"	4725
9				"	4750
380220				"	4775

RESOLUTE RESOURCES LIMITED

328114

Project Name: TASMANIA Prospect Name: ~~BUCKLANDS HILL INFILL~~ MANGANA. Tenement No.:

Sampler: JAMES + MIKE Sample Type: ~~SUBSURFACE SOIL~~ A- HORIZON Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: ~~27~~ 30/12/94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
380341	MANGANA		A-HORIZON	11800	8175
2				11700	8175
3				"	8125
4				11600	8075
5				"	8125
6				"	8175
7				11500	8175
8				11500	8125
9				11300	7825
380350				"	7775
1				11200	7875
2				"	7825
3				"	7775
4				"	7725
5				11100	7875
6				"	7825
7			SUSPECT SAMPLE ON DOZED AREA	8100	9775
8			SAMPLE 3M SOUTH ABOVE TRACK	"	9825
9			BELOW ROAD CUT	"	9875
380360				8000	9925
1				"	9875
2				"	9825
3				"	9775
4				7900	9825
5			6M SOUTH DUE TO COSTEAN	"	9875
6				"	9925
7				8900	9425
8	MANGANA		A-HORIZON	"	9475
9	MATHINNA & HORIZON		4m SOUTH WEST (CREEK) (PUBLICEE INFILL)	5150	4350
380370			4m NORTH WEST (CREEK & ROAD)	"	4375

RESOLUTE RESOURCES LIMITED

328115

Project Name: TASMANIA Prospect Name: HANGANA BLACK BOYS RIDGE Tenement No.:

Sampler: JAMES + MIKE Sample Type: SUBSURFACE SOIL Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: 20 / 12 / 94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
380401				10800	9750
2				"	9800
3				"	9850
4			SAMPLE 6M EAST TO SIDE OF ROAD	"	9900
5				"	9950
6				"	10000
7				"	10050
8				"	10100
9				"	10150
380410				"	10200
1			SAMPLE 7M WEST SOIL AT PIN NOT SUITABLE	"	10250
2				11100	9700
3				"	9650
4				"	9600
5				"	9550
6				"	9500
7				"	9450
8				"	9400
9				"	9350
380420				"	9300
1				"	9250
2				"	9215
3				11500	9700
4				"	9650
5				"	9600
6				"	9550
7				"	9500
8			SAMPLE 15M EAST/NORTH-EAST ABOVE ROAD	"	9450
9			" 15M SOUTH ABOVE + BELOW ROAD SUSPECT	"	9400
380430			" 25M SOUTH BELOW ROAD VERY SUSPECT	"	9350

RESOLUTE RESOURCES LIMITED

328116

Project Name: TASMANIA Prospect Name: BLACK BOYS RIDGE Tenement No.:

Sampler: JAMES + MIKE Sample Type: SUBSURFACE SOIL Sample Submission No.:

Note: New Area - New Page & New Sample Type - New Page Date: 21 / 12 / 94

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
380431				11100	9750
2				"	9800
3				"	9850
4				"	9900
5			SAMPLE 4M EAST AWAY FROM ROAD	"	9950
6				"	10000
7				"	10050
8				"	10100
9				"	10150
380440				"	10200
1				11500	9750
2				"	9800
3				"	9850
4				"	9900
5				"	9950
6				"	10000
7				"	10050
8			SAMPLE 3M EAST AWAY FROM ROAD	"	10100
9				"	10150
380450				"	10200
1			AUGER SAMPLE MATHINNA C horizon	7200	4550
2			" "	"	4600
3				"	4650
4				"	4700
5				"	4750
6				"	4800
7				6800	4750
8			SAMPLE SLIGHTLY SHALLOWER THAN NORMAL	"	4800
9				"	4850
380460				"	4900

328117

MinLab

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ANALYTICAL REPORT

Reference No: P52217

Date: 28 DEC 94

Samples Received: 20 DEC 94
Order Number : K9408
Project Number : N/A
Samples in Batch: 904

AREA COVERED : MANGANA / BUCKLANDS HILL

SAMPLE TYPE : SUB SURFACE SOIL

THIS REPORT HAS BEEN PREPARED FOR

RESOLUTE RESOURCES LIMITED

AND SHOULD BE READ IN CONJUNCTION WITH THE FINAL PAGE

Authorised by: _____
(C.A. Jenkins)

ATTN: G McDONALD
RESOLUTE RESOURCES LTD
MANGANA RD
FINGAL TAS 7214

328118

Reference No: P52217 **ATTN: G McDONALD** Page: 1

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm	
Detn Limit	1	1	1	10	
375691	12			<10	
375691 Rpt	10			<10	
375692	6			<10	
375693	8			<10	
375694	10			<10	
375695	8			<10	
375696	6			<10	
375697	18	8		20	
375698	14			50	
375699	10			<10	
375700	16			10	
375701	8			<10	
375701 Rpt	8			<10	
375702	8			<10	
375703	8			<10	
375704	12			<10	
375705	6			<10	
375706	12			<10	
375707	8			<10	MANCANA
375708	6			<10	
375715	10			<10	
375716	8			<10	
375716 Rpt	8			<10	
375717	12			<10	
375718	10			<10	
375718 Rpt	12			<10	
375719	8			<10	
375720	20			130	
375721	30	28		190	
375722	12			<10	
375723	12			<10	
375724	10			<10	
375725	10			<10	
375726	12			30	
375727	154	70	372	<10	
375728	10			<10	
375729	8			<10	
375730	10			<10	
375731	12			30	

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	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10
375738	4			10
375739	6			<10
375740	2			<10
375741	6			10
375742	6			<10
375749	8			<10
375750	8			30
375751	4			10
375752	6			<10
375753	8			<10
375754	12	16		90
375755	4			<10
375756	2			<10
375757	2			<10
375758	2			20
375759	4			20
375760	8			10
375761	4			<10
375762	8			10
375762 Rpt	8			10
375763	6			<10
375764	<1			<10
375765	2			<10
375765 Rpt	<1			<10
375766	2			<10
375767	4			30
375768	2			<10
375769	2			<10
375770	<1			20
375771	<1			<10
375772	2			10
375773	2			<10
375774	<1			<10
375775	6			<10
375776	6			<10
375777	6			<10
375778	8			<10
375779	6			<10

MANGANI

Reference No: P52217 **ATTN: G McDONALD**

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10
375786	6			<10
375787	10	8		10
375788	8			<10
375789	10			<10
375790	6			10
375791	8			10
375792	6			40
375793	6			<10
375794	6			<10
375794 Rpt	6			10
375795	8			<10
375796	6			160
375797	18	28		160
375798	<1			<10
375799	<1			<10
375800	2			<10
375801	2			<10
375801 Rpt	<1			<10
375802	2			<10
375803	2			10
375804	<1			<10
375804 Rpt	<1			10
375805	<1			<10
375810	<1			10
375811	<1			<10
375812	2			<10
375813	2			<10
375814	2			<10
375815	<1			<10
375816	2			<10
375817	6			<10
375822	4			<10
375823	6			<10
375824	6			<10
375825	4			<10
375825 Rpt	6			<10
375826	6			<10
375827	6			10
375828	6			<10
375829	4			<10
375830	6			20
375831	6			30
375832	6			50
375833	6			20

MANGANA

Reference No: P52217 **ATTN: G McDONALD**

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10
375834	4			<10
375835	4			<10
375836	4			10
375836 Rpt	4			<10
375837	4			<10
375838	<1			<10
375839	2			<10
375840	2			<10
375841	2			<10
375842	4			<10
375842 Rpt	4			<10
375843	4			40
375844	4			<10
375845	2			<10
375847	4			<10
375848	<1			<10
375849	4			<10
375850	2			<10
375851	2			<10
375852	2			<10
375853	2			<10
375854	2			<10
375855	2			<10
375856	10	14		<10
375857	2			<10
375860	6			<10
375861	8			<10
375862	10			30
375863	18	4		40
375864	10			<10
375865	8			<10
375866	18			60
375866 Rpt	22			70
375867	8			<10
375867 Rpt	8			<10
375868	10			<10
375869	6			20
375870	6			<10
375871	8			<10
375872	8			<10

MANGANA

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	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10
377439	8			30
377440	4			10
377441	12			10
377442	6			<10
377443	12			50
377444	6			10
377445	6			10
377446	6			<10
377447	12			70
377448	10			50
377449	16			70
377450	8			40
377451	8			60
377452	20	30		30
377453	4			<10
377462	6			<10
377463	6			<10
377464	6			40
377465	4	6		20
377466	10			10
377467	8			<10
377468	6			<10
377469	4			<10
377470	4			<10
377471	8			20
377472	8			10
377473	6			<10

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10
377484	4			<10
377485	10			<10
377486	10			10
377487	10			<10
377488	8			<10
377488 Rpt	8			<10
377489	6			<10
377490	6			<10
377491	4			20
377492	10			<10
377493	8			<10
377493 Rpt	8			<10
377494	6			20
377495	12			<10
377496	54	64	48	30
377497	8			<10
377507	4			<10
377508	6			<10
377509	4			10
377510	10	12		<10
377511	<1			<10
377512	6			<10
377512 Rpt	6			<10
377513	<1			10
377514	2			<10
377515	<1			<10
377515 Rpt	<1			<10
377516	<1			<10
377517	2			<10
377518	4			10
377519	<1			70
377520	2			<10
377521	<1			<10
377522	6			<10
377523	2			<10
377524	2			<10
377525	4			10
377526	12	2		<10
377527	2			<10

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10
377531	<1			<10
377532	4			10
377533	6			<10
377534	10	4		10
377535	8			<10
377536	6			10
377537	6			<10
377538	6			<10
377539	6			<10
377540	4			20
377541	4			<10
377541 Rpt	6			<10
377542	4			20
377543	6			90
377544	4			<10
377545	4			<10
377546	4			<10
377547	4			<10
377548	6			<10
377549	6			<10
377549 Rpt	4			<10
377550	4			<10
377551	6			<10
377552	8			30
377555	6			<10
377556	6			<10
377557	4			<10
377558	26	34	28	<10
377559	4			<10
377560	8			20
377561	8			<10
377562	10			<10
377563	4			<10
377563 Rpt	6			<10
377564	4			<10
377565	4			10
377566	8			30
377567	6			<10
377568	4			<10
377569	6			<10
377570	6			<10
377570 Rpt	8			<10
377571	6			<10
377572	4			<10
377573	6			<10
377574	4			<10
377575	4			<10

MANGANA

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	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm	
Detn Limit	1	1	1	10	
377576	6			<10	
377577	6			<10	MANGANA
377578	4			<10	

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	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10
377752	10			<10
377753	6			<10
377754	6			<10
377755	6			<10
377756	4			<10
377765	8			<10
377766	12			<10
377767	10	6		<10
377767 Rpt	16			<10
377768	10			<10
377769	8			<10
377770	10			<10

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm	
Detn Limit	1	1	1	10	
377781	6			<10	
377782	8			<10	
377783	10			<10	
377784	8			<10	
377785	8			10	
377786	10			<10	
377787	12			<10	MANGANA
377798	8			<10	
377799	8			<10	
377800	8			<10	
377801	6			<10	
377802	6			<10	
377803	8			<10	
377804	10			<10	
377805	10			<10	
377806	14			<10	
377807	6	6		<10	

Reference No: P52217 **ATTN: G McDONALD**

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10
377819 Rpt	10			<10
377820	8			<10
377821	8			<10
377822	2			20
377823	<1			<10
377824	<1			10
377825	4			<10
377826	4			<10
377826 Rpt	4			<10
377827	2			<10
377828	2			<10
377829	4			<10
377830	4			20
377831	6			20
377832	2			<10
377841	14			<10
377841 Rpt	14			<10
377842	10			<10
377843	20	12	8	<10
377844	18			20
377844 Rpt	16			20
377845	8			<10
377846	6			<10
377847	12			<10
377848	20			20
377849	12			<10
377850	28			120
377851	24			20
377851 Rpt	26			30
377852	10			40
377853	38			120
377854	138	376	78	<10
377855	70	54		30
377863	16			50
377864	16			80
377865	18			60
377866	22			70

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	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm	
Detn Limit	1	1	1	10	
377867	10			20	
377868	10			<10	
377869	10			<10	
377870	6			<10	
377871	6			<10	
377872	6			<10	
377873	8			<10	
377874	10			<10	
377875	34	36		80	
377876	10			90	
377876 Rpt	14			100	
377877	4			<10	
377878	4			<10	
377879	6			10	MANGANA
377887	18			40	
377887 Rpt	12			20	
377888	10			<10	
377889	10			140	
377890	54	30	56	240	
377891	14			10	
377892	16			<10	
377893	8			10	
377894	6			<10	
377895	8			<10	
377896	12			<10	
377897	6			<10	
377898	6			10	

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Reference No: P52217 **ATTN: G McDONALD** Page: 15

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm	
Detn Limit	1	1	1	10	
378597	8			<10	
378598	12			<10	
378599	4			<10	
378600	6			<10	
378601	8			10	
378602	14			<10	
378603	12			10	
378604	10			<10	
378605	8			<10	
378606	6			<10	
378607	8			<10	
378608	14			10	
378609	10			<10	
378609 Rpt	10			<10	
378610	6			<10	
378611	12			<10	
378612	8			<10	
378613	8			<10	
378614	12			<10	
378614 Rpt	10			<10	
378615	8			<10	MANGANA
378616	12			<10	
378617	10			10	
378618	8			20	
378619	12			<10	
378620	8			<10	
378621	12			<10	
378622	720	1.67M	434	40	
378623	20			10	
378624	10			<10	
378625	10			<10	
378626	6			<10	
378627	8			<10	
378628	10			<10	
378629	10			<10	
378630	10			<10	
378631	8			10	
378632	8			10	
378633	16			<10	
378634	8			<10	
378635	10			40	
378636	8			<10	
378637	8			<10	
378638	6			<10	
378639	10			<10	
378640	10			<10	
378640 Rpt	10			<10	
378641	8			<10	
378642	26	20	24	200	
378643	10			10	

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm	
Detn Limit	1	1	1	10	
378643 Rpt	10			<10	
378644	8			<10	
378645	2			<10	
378646	2			<10	
378646 Rpt	2			<10	
378647	4			<10	
378648	2			<10	
378649	2			<10	
378650	2			<10	
378651	4			<10	
378652	2			<10	
378653	10	8	10	10	
378654	1			<10	
378655	<1			<10	
378656	4			<10	
378657	1			<10	
378658	2			<10	
378659	1			<10	
378660	1			<10	
378661	2			<10	MANGANA
378662	<1			<10	
378663	16	22	18	<10	
378664	2			<10	
378664 Rpt	<1			<10	
378665	4			<10	
378666	8			<10	
378667	6			<10	
378668	10			<10	
378669	10			<10	
378670	6			10	
378671	8			<10	
378672	8			<10	
378673	10			<10	
378674	10			<10	
378675	6			<10	
378676	4			<10	
378677	8			<10	
378677 Rpt	8			<10	
378678	6			<10	
378679	8			<10	
378680	10			<10	
378681	8			<10	
378682	10			<10	
378683	10			<10	
378683 Rpt	8			<10	
378684	8			<10	
378685	8			<10	
378686	12			<10	
378687	2			<10	
378688	4			<10	
378689	1			<10	
378690	6			<10	

Reference No: P52217 **ATTN: G McDONALD** Page: 17

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm	
Detn Limit	1	1	1	10	
378691	2			<10	
378692	2			<10	
378693	4			<10	
378693 Rpt	2			<10	
378694	6			<10	
378695	2			<10	
378696	4			<10	
378696 Rpt	4			<10	
378697	42	4	<1	<10	
378698	6			<10	
378699	2			<10	
378700	2			<10	
378701	4			<10	
378702	4			<10	
378703	1			<10	
378704	1			<10	
378705	2			<10	
378706	4			<10	
378707	4			<10	
378708	<1			<10	
378709	1			<10	
378710	<1			<10	
378711	<1			<10	MANGANA
378712	1			<10	
378712 Rpt	1			<10	
378713	<1			<10	
378714	2			<10	
378714 Rpt	<1			<10	
378715	1			<10	
378716	1			<10	
378717	<1			<10	
378718	1			<10	
378719	<1			<10	
378720	<1			<10	
378721	<1			<10	
378722	<1			<10	
378723	4			<10	
378724	<1			<10	
378725	<1			<10	
378726	<1			<10	
378727	1			<10	
378728	4			<10	
378729	1			<10	
378730	<1			<10	
378731	1			<10	
378732	4			<10	
378733	4			<10	
378734	<1			<10	
378735	<1			<10	
378736	4			20	
378737	30	30		10	
378738	6			20	

Reference No: P52217 **ATTN: G McDONALD**

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10
378739	6			<10
378740	2			<10
378741	10			<10
378742	4			40
378742 Rpt	4			20
378743	4			<10

MANGANA

HILL

****

M Implies this result reported in ppm

Au, Au(R1), Au(R2),
Technique - Fire Assay on a 50 gram charge followed by solvent extraction

As,
Technique - AAS

END OF REPORT

328135

MinLab

MINCULTURE LABORATORIES PTY LTD ACN 008 960 174 TRUSTEE FOR THE MINLAB UNIT TRUST TRADING AS MINLAB

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ANALYTICAL REPORT

Reference No: P52226

Date: 31 DEC 94

Samples Received: 28 DEC 94
Order Number : K9410A
Project Number : N/A
Samples in Batch: 776

AREA COVERED: MATHINNA, CHINAMENS HILL
BUCKLANDS HILL, BLACKBOY RIDGE.

SAMPLE TYPE:
SUB-SURFACE SOIL

THIS REPORT HAS BEEN PREPARED FOR

RESOLUTE RESOURCES LTD

AND SHOULD BE READ IN CONJUNCTION WITH THE FINAL PAGE

Authorised by: A. Ferguson
(A.J. Ferguson)

ATTN: G McDONALD
RESOLUTE RESOURCES LTD
MANGANA RD
FINGAL TAS 7214

Reference No: P52226 **ATTN: G McDONALD** Page: 3

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10
376050	14			20
376051	6			<10
376052	6			<10
376052 Rpt	4			<10
376053	2			<10
376053 Rpt	2			<10
376054	4			<10
376055	4			<10
376056	8			<10
376057	4			<10
376058	4			<10
376059	4			<10
376060	6			<10
376061	10			10
376062	6			10
376063	10			20
376064	8			30
376065	8			<10
376066	10			10
376067	6			<10
376068	8			<10
376069	6			<10
376070	8			<10
376070 Rpt	8			<10
376071	6			<10
376072	4			<10
376072 Rpt	6			<10
376073	8			<10
376074	6			<10
376075	10			40

BLACKBOY RIDGE

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10
376076	4			<10
376077	16	44	6	10
376078	12			20
376079	12			<10
376080	16			10
376081	16			10
376082	12			<10
376083	12			<10
376084	12			<10
376085	10			<10
376086	12			<10
376087	16			<10
376088	10			<10
376089	26	10	26	110
376090	16			<10
376091	10			<10
376091 Rpt	12			<10
376092	12			<10
376093	14			<10
376094	14			<10
376095	12			<10
376096	12			<10
376097	14			<10
376098	14			30
376099	12			<10
376099 Rpt	12			<10
376100	12			<10
376101	14			10
376102	12			<10
376103	12			<10
376104	12			<10
376105	12			20
376105 Rpt	12			10
376106	10			<10
376107	10			<10
376108	12			<10
376109	10			<10
376110	10			<10
376111	10			<10
376112	10			<10
376113	14			<10
376114	12			<10
376115	14			<10
376116	10			30
376116 Rpt	10			20
376117	28			110
376118	32	26		270
376119	16			<10
376120	26			100
376121	12			<10
376122	10			<10
376123	6			<10

BLACKBOY RIDGE

Reference No: P52226 **ATTN: G McDONALD** Page: 3

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10
376050	14			20
376051	6			<10
376052	6			<10
376052 Rpt	4			<10
376053	2			<10
376053 Rpt	2			<10
376054	4			<10
376055	4			<10
376056	8			<10
376057	4			<10
376058	4			<10
376059	4			<10
376060	6			<10
376061	10			10
376062	6			10
376063	10			20
376064	8			30
376065	8			<10
376066	10			10
376067	6			<10
376068	8			<10
376069	6			<10
376070	8			<10
376070 Rpt	8			<10
376071	6			<10
376072	4			<10
376072 Rpt	6			<10
376073	8			<10
376074	6			<10
376075	10			40

BLACKBOY RIDGE

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10

LL

L

377963 8 <10

BUCKLANDS HILL

Reference No: P52226 **ATTN: G McDONALD** Page: 5

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm	
Detn Limit	1	1	1	10	
376124	4			10	
376125	4			10	
376126	6			20	
376127	4			40	
376128	2			<10	BLACKBOY RIDGE
376129	2			<10	
376130	4			<10	
376131	4			<10	
376132	2			<10	

HILL

HILL

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10
379859	4			20
379860	<1			<10
379861	<1			10
379862	<1			<10
379863	<1			<10
379864	<1			20
379865	<1			20
379866	<1			10
379867	<1			<10
379868	<1			20
379869	<1			10
379870	<1			<10
379871	<1			<10
379872	4			<10
379873	4			<10
379874	8	12		<10
379874 Rpt	4			10
379875	2			<10
379876	<1			<10
379877	<1			<10
379878	<1			<10
379879	<1			<10
379880	<1			<10
379881	<1			<10
379882	<1			<10
379883	<1			<10
379884	4			<10
379885	<1			<10
379886	<1			<10
379887	2			<10
379887 Rpt	<1			<10
379888	2			<10
379889	2			<10

MATHINNA

BLACKBOY RIDGE

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10
379890	<1			<10
379891	10	10		10
379892	2			<10
379893	2			<10
379894	2			<10
379894 Rpt	4			<10
379895	2			<10
379896	2			<10
379897	2			<10
379898	4			<10

BLACK BOY RIDGE

HILL

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10

378965	14	10	
378966	10	10	
378967	16	100	BLACKBOY RIDGE
378968	10	<10	

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10
378969	14			<10
378969 Rpt	14			<10
378970	14			<10
378971	14			<10
378972	10			<10
378973	12			<10
378974	20	18		40
378975	16			<10
378976	14			<10
378977	16			10
378978	12			<10
378979	14			<10
378980	12			<10
378981	12			<10
378982	14			<10
378983	16			<10
378984	12			<10
378985	14			<10
378986	14			20
378986 Rpt	14			10
378987	12			<10
378988	12			10
378989	16			<10
378990	12			<10
378991	18			<10
378992	32			<10
378993	6			<10
378993 Rpt	4			<10
378994	4			<10
378995	4			<10
378996	4			<10
378997	8			<10
378998	<1			<10
378999	4			<10

BLACKBOY RIDGE

A

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M Implies this result reported in ppm

Au, Au(R1), Au(R2),
Technique - Fire Assay on a 50 gram charge followed by solvent extraction

As,
Technique - AAS

END OF REPORT

MinLab

MINCULTURE LABORATORIES PTY LTD ACN 008 860 174 TRUSTEE FOR THE MINLAB UNIT TRUST TRADING AS MINLAB

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ANALYTICAL REPORT

Reference No: P60003

Date: 10 JAN 95

Samples Received: 03 JAN 95
Order Number : K9411A
Project Number : N/A
Samples in Batch: 248

AREA COVERED - NIMTYINNA, BLACKBOYS RIDGE

SAMPLE TYPE: SUB-SURFACE SOIL, AUGERED SUB-SURFACE SOIL

THIS REPORT HAS BEEN PREPARED FOR

RESOLUTE RESOURCES LTD

AND SHOULD BE READ IN CONJUNCTION WITH THE FINAL PAGE

Authorised by: A Ferguson
(A.J. Ferguson)

ATTN: G McDONALD
RESOLUTE RESOURCES LTD
MANGANA RD
FINGAL TAS 7214

Reference No: P60003 **ATTN: G McDONALD**

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10
376166	206	176	202	570
376167	38			<10
376168	12			<10
376169	16			<10
376170	26			60
376171	26			70
376171 Rpt	16			60
376172	8			<10
376173	22	18	18	<10
376174	22			<10
376175	12			<10
376176	14			30
376177	12			<10
376178	14			<10
376179	2			<10
376180	20			100
376181	6			<10
376182	8			120
376182 Rpt	2			100
376183	16			150
376184	4			60
376185	10			30
376186	16	10		<10
376187	16	14		<10
376188	<1			140
376189	4			40
376189 Rpt	2			40
376190	<1			80
376191	2			80
376192	<1			130
376193	2			20
376194	<1			50
376195	6			<10
376196	2			<10
376198	<1			<10
376199	<1			<10
376200	<1			<10
376201	<1			<10
376202	<1			<10
376203	2			<10
376204	<1			20
376205	<1			<10
376206	<1			10
376206 Rpt	2			20
376207	6			40
376208	<1			<10
376209	8			<10
376210	2			<10
376211	4			<10
376212	<1			<10
376213	<1			<10

BLACKBOYS RIDGE

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm	
Detn Limit	1	1	1	10	
376214	<1			<10	
376215	4			50	
376216	2			<10	BLACKBOYS RIDGE
376217	<1			<10	
376218	8			<10	

NNH

(R)

380401	4			190	
380401 Rpt	<1			210	
380402	2			<10	
380403	<1			<10	
380404	4			<10	
380405	2			<10	
380406	2			<10	
380407	6			30	
380408	22	20	22	250	
380409	14			160	
380409 Rpt	16			200	
380410	12			130	BLACKBOYS RIDGE
380411	6			170	
380412	4			10	
380413	8			10	
380413 Rpt	6			30	
380414	120	24	38	30	
380415	24			300	
380416	2			110	
380417	<1			<10	
380418	6			10	
380419	6			10	
380419 Rpt	4			10	
380420	4			30	
380421	2			<10	

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10
380422	2			80
380423	2			50
380424	<1			30
380425	<1			<10
380426	<1			30
380427	4			130
380428	<1			10
380429	<1			20
380430	<1			60
380431	<1			50
380432	<1			50
380433	<1			20
380434	<1			30
380435	<1			80
380436	<1			70
380436 Rpt	<1			50
380437	<1			130
380438	<1			10
380439	1			60
380440	1			70
380441	<1			40
380442	<1			50
380443	<1			100
380444	<1			100
380444 Rpt	1			90
380445	<1			60
380446	<1			60
380447	<1			110
380448	<1			60
380449	2			50

BLACK BOAS RIDGE

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm	
Detn Limit	1	1	1	10	
380148	<1			30	
380149	36	34	34	410	
380150	<1			40	
380151	<1			10	
380152	<1			<10	
380153	<1			<10	
380154	4			<10	
380155	6			<10	
380156	6			<10	
380157	4			<10	
380157 Rpt	6			<10	
380158	4			<10	
380159	6			<10	
380160	6			<10	
380160 Rpt	8			<10	
380161	18	12	14	80	
380162	2			<10	
380163	6			50	
380164	6			30	BLACKBOYS RIDGE
380165	4			<10	
380166	2			<10	
380167	4			<10	
380168	4			<10	
380169	8			30	
380170	4			<10	
380171	6			30	
380172	2			10	
380173	10	6		30	
380174	4			20	
380175	<1			<10	
380176	2			<10	
380177	<1			<10	
380178	1			<10	
380179	4			<10	
380179 Rpt	4			<10	
380180	<1			<10	
380180 Rpt	<1			<10	
380181	2			<10	
380182	2			40	
380183	<1			20	
380184	66	56	48	530	
380185	4			10	
380186	<1			10	
380187	2			<10	
380188	2			<10	
380189	<1			<10	
380190	2			<10	
380191	2			<10	
380192	<1			<10	
380193	8	4		<10	
380194	4			<10	
380195	2			<10	

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10
379899	2			<10
379900	2			<10
379901	2			<10
379902	6			<10
379903	56	24	38	<10
379904	16	6		<10
379905	12			<10
379905 Rpt	10			10
379906	2			<10
379907	4			10
379907 Rpt	4			<10
379908	6			20
379909	6			<10
379910	2			<10
379911	2			<10
379912	2			<10
379913	6			<10
379914	2			<10
379915	4			<10
379916	6			<10
379917	2			<10
379918	4			<10
379919	<1			<10
379919 Rpt	<1			<10
379920	<1			<10
379921	2			<10
379922	2			<10
379923	<1			<10
379924	<1			10
379925	<1			<10
379926	<1			<10
379927	2			<10
379928	<1			<10
379929	6			<10

BLACKBOYS RIDGE

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Au, Au(R1), Au(R2),
Technique - Fire Assay on a 50 gram charge followed by solvent extraction

As,
Technique - AAS

END OF REPORT

MinLab

328153

MINCULTURE LABORATORIES PTY LTD ACN 008 960 174 TRUSTEE FOR THE MINLAB UNIT TRUST TRADING AS MINLAB

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ANALYTICAL REPORT

Reference No: P60017

Date: 17 JAN 95

Samples Received: 12 JAN 95
Order Number : K9413
Project Number : N/A
Samples in Batch: 84

AREA COVERED : [illegible], BUCKLANDS HILL

SAMPLE TYPE : SUB-SURFACE SOIL
AUGER SUB-SURFACE SOIL

THIS REPORT HAS BEEN PREPARED FOR

RESOLUTE RESOURCES LIMITED

AND SHOULD BE READ IN CONJUNCTION WITH THE FINAL PAGE

Authorised by: [signature]
(A.J. Ferguson)

ATTN: G McDONALD
RESOLUTE RESOURCES LIMITED
MANGANA RD
FINGAL TAS 7214

328154

Reference No: P60017 **ATTN: G McDONALD** Page: 1

	Au ppb	Au(R1) ppb	Au(R2) ppb	As ppm
Detn Limit	1	1	1	10
380357	84	14	16	20
380358	12			30
380359	20			<10
380359 Rpt	22			10
380360	256	62	118	10
380361	34			90
380362	24			60
380363	18			40
380364	20			30
380365	14			20
380366	20			70
380366 Rpt	20			50
380367	28	24	22	90
380368	24			70

HILL

18/9

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Au, Au(R1), Au(R2),
Technique - Fire Assay on a 50 gram charge followed by solvent extraction

As,
Technique - AAS

END OF REPORT

MinLab

328180

MINCULTURE LABORATORIES PTY LTD ACN 008 960 174 TRUSTEE FOR THE MINLAB UNIT TRUST TRADING AS MINLAB

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ANALYTICAL REPORT

Reference No: P61305

Date: 28 JUL 95

Samples Received: 18 JUL 95
Order Number : N/A
Submission Sheet: N/A
Project Number : N/A
Samples in Batch: 22

CHECK ASSAYS FOR SOILS - MANGANA.

THIS REPORT HAS BEEN PREPARED FOR

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Authorised by: R Ferguson
(A.J. Ferguson)

ATTN: G McDONALD
THE RESOLUTE SAMANTHA GROUP
MANGANA RD
FINGAL TAS 7214

328157

Reference No: P61305 **ATTN: G McDONALD** Page: 1

	Au ppb	As ppm	
Detn Limit	1	10	
376115	6	10	
376116	4	20	18/91
376117	6	110	
376118	72	290	
376119	8	<10	
379876	<1	<10	
379877	<1	<10	
379878	<1	<10	18/91
379879	<1	<10	
379879 Rpt	<1	<10	
379880	<1	<10	
380443	<1	80	
380444	<1	70	18/91

****

Au,
Technique - Fire Assay on a 50 gram charge followed by solvent extraction

As,
Technique - AAS

END OF REPORT

APPENDIX C

Rock Sample Locations, Descriptions and Assay Results

328160

RESOLUTE RESOURCES LIMITED - ROCK SAMPLE

LOCATION / DESCRIPTION / ASSAYS

SAMPLE NO.	SAMPLE LOCATION GRID CO-ORDS OR DESCRIPTIONS		SAMPLE DESCRIPTION	ASSAYS - Fe in %, all other in ppm										
				Au	As	Ag	Sb	Cu	Pb	Zn	Bi	W	Fe	Mn
379691	MS	5395050N, 5730 50E	pyritic puggy lode slate reef channel in Majors Gully.	0.05	220	0.7	<2	25	15	55	<0.01	<2	230	415
379696	MS	5394900N, 5731 50E	stockwork in Majors Gully	0.11	340	<0.5	<2	<5	10	5	<001	<2	060	55
380736	10750N	9375E	arsenopyritic stockwork	1.52	12000									
380737	10800N	9650E	siltstone (no quartz)	0.02	60									
380738	10800N	9700E	siltstone (no quartz)	0.02	250									
380739	10800N	9710E	irregular fine quartz veinlets in siltstone	0.01	60									
380740	10900N	9480E	qtz stockworked siltstone	0.18	480									
380741	"	9500E	" "	0.08	90									
380742	"	"	pyritic silicified siltstone	0.03	215									
380743	"	"	stockworked siltstone	0.15	410									
380744	"	"	" "	0.20	490									
380745	"	"	silicified siltstone	0.05	170									
380746	"	"	stockworked siltstone	0.06	145									
380747	"	"	" " silicified	0.08	620									
380748	"	"	ferruginous bucky quartz	0.02	60									
380749	11000N	9450E	stockworked siltstone, ferruginous	0.01	30									
380750	"	9470E	" "	0.09	100									
380751	"	9500E	" "	0.01	<10									
380752	"	9550E	10mm qtz veins parallel to clearage in shale	0.02	90									
380753	"	9575E	stockworked siltstone	0.01	70									
380754	10975N	9450E	100mm ferruginous vitreous quartz	0.02	<10									
380755	11100N	9500E	ferruginous siltstone	0.02	<10									
380756	"	9500E	5mm ferruginous veinlet in siltstone	0.02	<10									
380757	"	9530E	ribbon like quartz, ferruginous	0.04	510									
380758	"	9550E	crack seal quartz with ferruginous centre	0.02	90									
380759	"	9550E	stockworked siltstone	0.02	<10									
380760	"	9600E	ferruginous buck quartz.	0.04	<10									
380761	"	"	ferruginous stockworked siltstone	0.02	<10									
380762	"	"	" " "	0.02	20									
380763	11600N	9550E	siltstone (no qtz)	0.02	10									

328161

RESOLUTE RESOURCES LIMITED - ROCK SAMPLE

LOCATION / DESCRIPTION / ASSAYS

SAMPLE NO.	SAMPLE LOCATION GRID AMG CO-ORDS OR DESCRIPTIONS	SAMPLE DESCRIPTION	ASSAYS - Fe in %, all other in ppm										
			Au	As	Ag	Sb	Cu	Pb	Zn	Bi	W	Fe	Mn
380855		haematitic quartz	0·03	<10									
380856	see figure 4	Argyle No 1 Adit	0·12	100									
380857	"	"	0·37	50									
380858	"	"	140·2	100									
380859	"	"	0·45	<10									
380860	"	"	1·98	50									
380861	"	"	0·22	100									
380862	"	"	0·05	70									
380863	"	"	0·49	30									
380864	"	"	0·47	60									
380865	"	"	0·10	<10									
380866	"	"	0·76	165									
380867	"	"	0·06	<10									
380868	"	"	1·29	<10									
380869	"	"	0·77	370									
380870	"	"	7·12	<10									
380871	"	"	0·57	<10									
380872	"	"	0·38	330									
380873	"	"	0·06	<10									
380874	"	"	2·66	<10									
380875	"	"	0·05	30									
380876	"	Argyle No 2 Adit	0·04	<10									
380877	"	"	0·05	<10									
380878	see figure 5	Golden Entrance No 1 Adit	19·9	<10									
380879	"	"	0·30	<10									
380880	"	Golden Entrance No 2 Adit	0·43	100									
380881	"	"	0·33	350									
380882	"	Golden Entrance ore paddock	4·57	250									
380883	"	"	195·0	290									
380884	see figure 6	Mangona Gold Reefs Adit No 3	2·28	2270									
380885	"	"	0·45	910									
380886	"	"	0·85	865									
380887	"	Mangona Gold Reefs Adit No 2	0·69	630									
380888	"	"	0·36	200									

328162

MinLab

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ANALYTICAL REPORT

Reference No: P60038

Date: 31 JAN 95

AREA COVERED: MANGANA, CHANNIERS HILL
MANGANA BUCKLANDS HILL

SAMPLE TYPE: ROCKS

Samples Received: 23 JAN 95
Order Number : K9414
Project Number : 17/91
Samples in Batch: 17

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Authorised by: A.J. Ferguson
(A.J. Ferguson)

ATTN: G McDONALD
RESOLUTE RESOURCES LIMITED
MANGANA RD
FINGAL TAS 7214

328163

Reference No: P60038 **ATTN: G McDONALD** Page: 1

	Au ppm	Au(R1) ppm	Au(R2) ppm	As ppm	Ag ppm	Bi ppm	Cu ppm
Detn Limit	0.01	0.01	0.01	10	0.5	0.01	5
379691	0.05			220	0.7	<0.01	25
379696	0.11			340	<0.5	<0.01	<5

Reference No: P60038 **ATTN: G McDONALD** Page: 2

	Fe %	Mn ppm	Pb ppm	Sb ppm	W ppm	Zn ppm
Detn Limit	0.01	1	5	2	2	5
379691	2.30	415	15	<2	<2	55
379696	0.60	55	10	<2	<2	5

****

Au, Au(R1), Au(R2),
Technique - Fire Assay on a 50 gram charge

As, Ag, Cu, Fe, Mn, Pb, Sb, Zn,
Technique - AAS

Bi,
Technique - AAS

W,
Technique - Potassium Bi-Sulphate Fusion/Colorimetric

END OF REPORT

328166

MinLab

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KALGOORLIE WA 6430
Tel: (090) 21 5664
Fax: (090) 91 2200

Lot 484 Criddle St
MT MAGNET WA 6638
Tel: (099) 634 532
Fax: (099) 634 531

ANALYTICAL REPORT

Reference No: P61576

Date: 06 SEP 95

Samples Received: 31 AUG 95
Order Number : KO9425C
Submission Sheet: KO9425C
Project Number : TAS
Samples in Batch: 75

THIS REPORT HAS BEEN PREPARED FOR

THE RESOLUTE SAMANTHA GROUP

AND SHOULD BE READ IN CONJUNCTION WITH THE FINAL PAGE

Authorised by: C.A. Jenkins

ATTN: G McDONALD
THE RESOLUTE SAMANTHA GROUP
MANGANA RD
FINGAL TAS 7214

Reference No: P61576 **ATTN: G McDONALD** Page: 1

	Au ppm	Au(R1) ppm	Au(R2) ppm	As ppm
Detn Limit	0.01	0.01	0.01	10
380736	1.53			1.150%
380736 Rpt	1.50			1.250%
380737	0.02			60
380738	0.02			250
380739	0.01			60
380740	0.18	0.18		480
380741	0.08			90
380742	0.03			220
380742 Rpt	0.03			210
380743	0.15			410
380744	0.21	0.19		490
380745	0.05			170
380746	0.06			150
380746 Rpt	0.06			140
380747	0.08			620
380748	0.02			60
380749	0.01			30
380750	0.09			100
380751	0.01			<10
380752	0.02			90
380753	0.01			70
380754	0.02			<10
380755	0.02			<10
380756	0.02			<10
380757	0.04			510
380758	0.02			80
380758 Rpt	0.02			100
380759	0.02			<10
380759 Rpt	0.02			<10
380760	0.04			<10
380761	0.02			<10
380762	0.02			20
380763	0.02			10

****

% Implies this result reported in %

Au, Au(R1), Au(R2),
Technique - Fire Assay on a 50 gram charge

As,
Technique - AAS

END OF REPORT

MinLab

328169

MINCULTURE LABORATORIES PTY LTD ACN 008 960 174 TRUSTEE FOR THE MINLAB UNIT TRUST TRADING AS MINLAB

18A Denninup Way
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Tel: (09) 249 5277
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Tel: (090) 21 5664
Fax: (090) 91 2200

Lot 484 Criddle St
MT MAGNET WA 6638
Tel: (099) 634 532
Fax: (099) 634 531

ANALYTICAL REPORT

Reference No: P61450

Date: 22 AUG 95

Samples Received: 14 AUG 95
Order Number : K9424C
Submission Sheet: K9424C
Project Number : TAS
Samples in Batch: 47

THIS REPORT HAS BEEN PREPARED FOR

THE RESOLUTE SAMANTHA GROUP

AND SHOULD BE READ IN CONJUNCTION WITH THE FINAL PAGE

Authorised by: A.J. Ferguson

ATTN: G McDONALD
THE RESOLUTE SAMANTHA GROUP
MANGANA RD
FINGAL TAS 7214

Reference No: P61450 ATTN: G McDONALD

	Au ppm	Au(R1) ppm	Au(R2) ppm	As ppm
Detn Limit	0.01	0.01	0.01	10
380855	0.03			<10
380856	0.12			100
380857	0.37			50
380858	92.5	178.	150.	100
380859	0.45			<10
380860	1.97			50
380860 Rpt	1.98			50
380861	0.22			100
380862	0.05			70
380863	0.49			30
380864	0.47			60
380865	0.10			<10
380866	0.75			170
380866 Rpt	0.77			160
380867	0.06			<10
380868	1.29			<10
380869	0.77			370
380870	5.99	7.11	8.28	<10
380871	0.37			<10
380871 Rpt	0.76			<10
380872	0.38			330
380873	0.06			<10
380874	2.66			<10
380875	0.05			30
380876	0.04			<10
380877	0.05			<10
380878	19.9			<10
380879	0.30			<10
380880	0.34			110
380880 Rpt	0.52			90
380881	0.33			350
380882	3.36	5.17	5.17	250
380883	195.			290
380884	2.24			2270
380885	0.45			910
380886	0.91			870

	Au ppm	Au(R1) ppm	Au(R2) ppm	As ppm
Detn Limit	0.01	0.01	0.01	10
380886 Rpt	0.79			860
380887	0.69			630
380888	0.36			200

****

Au, Au(R1), Au(R2),
Technique - Fire Assay on a 50 gram charge

As,
Technique - AAS

END OF REPORT

APPENDIX D

Interpretations of Aeromagnetic Data
- J Ashley

Resolute/Samantha Group

Northeast Tasmania

'Mathinna Project'

Interpretation of Aeromagnetic Data

J.Ashley March 1995

TABLE OF CONTENTS

ILLUSTRATIONS

SUMMARY

Aeromagnetic data over and adjacent to the tenements in the Mathinna area have been interpreted to assist in exploration for gold mineralisation.

In the Tower Hill/Mathinna/Dans Rivulet zone eight target areas, based on dilation zones related to secondary fault structures, are outlined. A general zone of interest is outlined over a proposed 'structural repeat' of the Mathinna setting.

In the Mangana area general zones of interest are outlined adjacent to interpreted major fault structures. One specific target zone is outlined over a dilation zone.

A zone of interest is outlined 4km west of Mathinna over an inferred folded sequence overlying granitoid.

1.INTRODUCTION

An interpretation of aeromagnetic data over and adjacent to EL's 17 - 18/91, 22/92 and 26 - 28/94 has been made to assist in exploration for gold mineralisation.

The aeromagnetic data are from the Netgold Database of northeast Tasmania. Within the study area the data are from three surveys (Figure 1):

Fingal 1993 (Geoinstruments)
- 200m spaced east-west flight lines
- 400m spaced north-south tie lines
- mean terrain clearance 74m (range 24-319m)

Mathinna 1990 (Geoinstruments)
- 150m spaced north-south flight lines
- 400m east-west tie lines
- mean terrain clearance 95m (range 55-207m)

Alberton Manganna 1989 (Austirex)
- 500m spaced east-west flight lines
- 5000m spaced north-south tie lines
- mean terrain clearance 244m (range 38-858m)

These data have been merged, gridded and contour maps at scale 1:50000 have been produced (Figures 3A,B). The data have also been image processed with results being presented on 35mm slides; hardcopy of one image was produced at scale 1:50000.

Geological data made available were the following:

1:250000 Geology map of northeast Tasmania

1:50000 Geology maps for Ringarooma, Alberton, St Helens, Ben Lomond, St Marys, Snow Hill

1:25000 Maps of the Mangana, Mathinna-Tower Hill and Dans Rivulet Goldfields

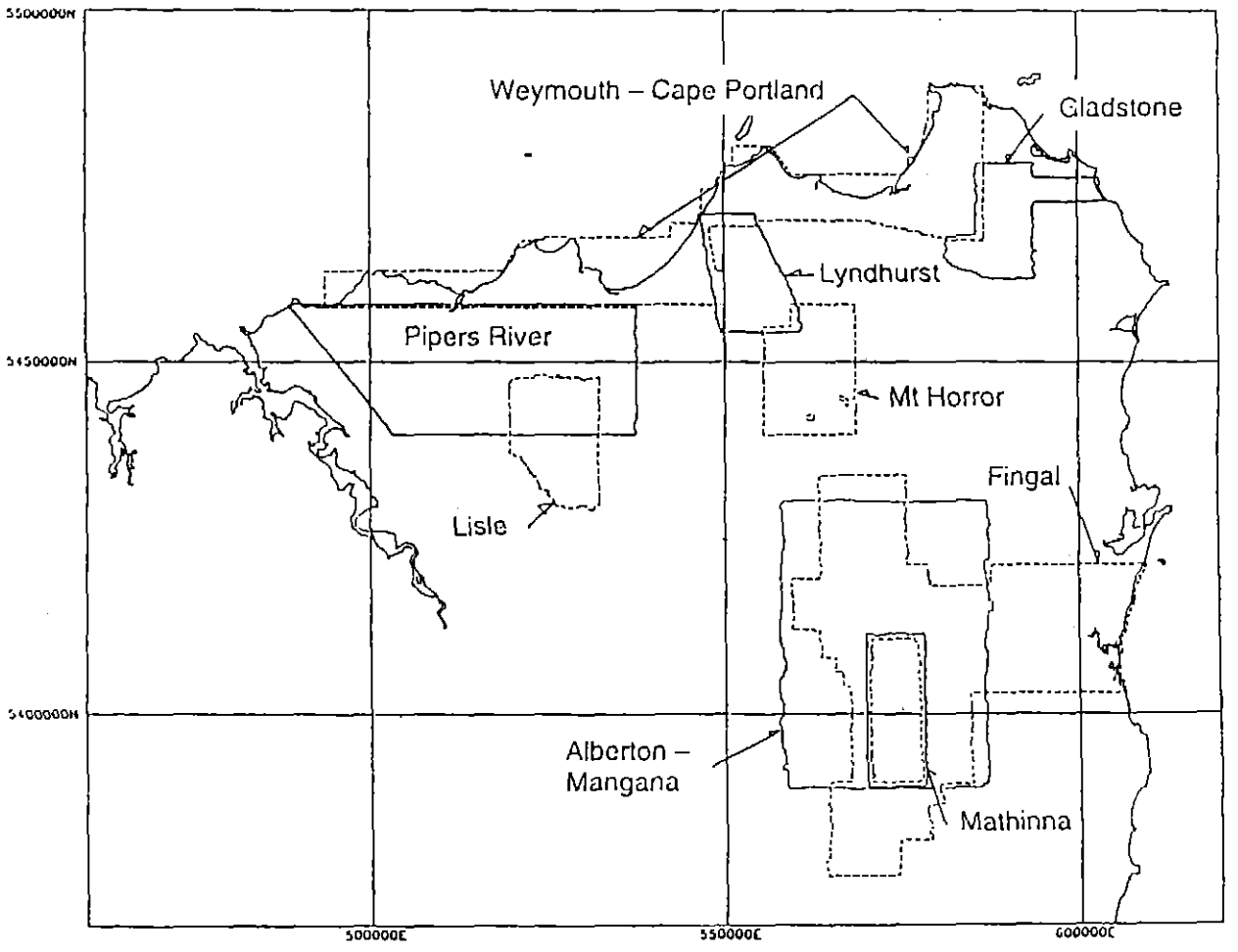
5500000N
5450000N
5400000N
500000E
550000E
600000E
Weymouth – Cape Portland
Gladstone
Lyndhurst
Pipers River
Mt Horror
Fingal
Lisle
Alberton –
Mangana
Mathinna

Figure 1

Mineral Resources Tasmania Reports:

1994/06 Structure and veining in the Devonian aged Mathinna-Alberton Gold Lineament, northeast Tasmania - R.A.Keele

1992/10 Northeast Goldfields: A summary of the Tower Hill, Mathinna and Dans Rivulet Goldfields - J.Tahieri

1994/05 A study of the nature and origin of gold mineralisation, Mangana-Forrester area, northeast Tasmania - J.Tahieri, R.S.Bottrill

1992/29 The Mangana Goldfield and adjacent gold mining areas - R.S.Bottrill

1994/08 An interpretation of recent geophysical surveys, northeastern Tasmania - R.G.Richardson, M.J.Roach

Sundry reports:

Aeromagnetic survey EL 55/83 Mangana - Acquisition Report.....Dr.DE.Leaman, 1990

Gold Exploration and the use of magnetic methods in northeast Tasmania - Dr D.E.Leaman 1992

Regional geophysics of the Alberton-Mangana goldfield, northeast Tasmania - M.J.Roach 1992

An interpretation of the aeromagnetic data is presented at scale 1:50000 in Figures 2A,B.

2. DISCUSSION

The magnetic characteristics of most of the rocks within the study area have been documented by Roach (1992) and Richardson and Roach (1994). The data in the table below are taken from Roach:

	Magnetic Susceptibility Range	($x10^{-3}$ SI) Mean
Tertiary Basalt	variable	>10
Jurassic Dolerite	variable	10
Permian Sediments	0 - 0.02	~0
Blue Tier Granite	0.02 - 0.15	0.05
Scottsdale Granite	0.02 - 0.20	0.12
Pyengana Granodiorite	3.0 - 10.0	8.0
	0.15 - 0.3	0.22
Mathinna Metasediments	0.06 - 0.32	0.15

(The distribution of the magnetic rocks is best seen in the slide of the coloured, linear, total magnetic intensity).

The highest magnetic relief in the area is produced by sills of Jurassic and Tertiary volcanics; these rocks also occur as talus deposits and in drainage channels where they produce variable, erratic, magnetic relief. The magnetic phase of the Pyengana granodiorite produces a prominent magnetic response. Sediments adjacent to the Blue Tier granite (adamellite) are 'magnetic' as a result of (inferred) contact metamorphism (seen on the St Helens map sheet). Northeast trending dykes (Devonian?) are evident on the St Helens and St Marys map sheets; one southeast trending Jurassic dyke is located just to the west of the Tower Hill gold mining centre. The Mathinna Beds contain some magnetic lithologies which exhibit magnetic relief up to about 40nT (eg adjacent to the Scottsdale batholith). Some of the relief is very low and on the interpreted plans these anomalies are shown as 'trend lines'. The latter are probably very difficult to identify in the field; the former should be recognisable.

There are several low-amplitude 'broad' magnetic anomalies over the sediments (most clearly seen in the slide of the non-linear total magnetic intensity). These have been attributed (Roach 1992) to sub-surface granodiorites similar to the magnetic phase of the Pyengana granodiorite. This is considered to be a valid interpretation; an alterative source could be metamorphosed sediments overlying non-magnetic granitoids. The strongest of these 'deep' anomalies (~80nT) is in the extreme southwest. The source is interpreted to be at depth of 1 - 2km; sediments overlying this, and other 'deep' features, are inferred to be 'grossly' anticlinally folded ie along axes f_1 - f_7. Smaller scale fold structures are evident in the

sediments adjacent to the Blue Tier batholith; a northwest fold axis (f8) is interpreted west of Mathinna where arcuate, weak, magnetic trends are observed.

Several 'major' and many minor (secondary) fault structures are interpreted. 'Major' structures trend north-northwest and northeast (the confidence in the interpretation is indicated by the 'length' of the fault symbol on the maps). The northeast dextral fault (F1) through the Pyengana granodiorite is an obvious feature where it transects the pluton but is not obvious to the southwest. A northeast fault (F2) is interpreted along a 'magnetic contact' adjacent to the South Esk river and is inferred to contain dyke rocks to the northeast (on the St Helens map sheet). Displacement on this fault may be sinistral.

North-northwest faults are mostly interpreted in the west of the area. The fault F3 is based largely on a contact displacement of the 'deep' granitoid south of the Scottsdale batholith - it is not a well defined feature.

The zone bounded by faults F4/F10 contains the bulk of the linear magnetic lithologies in the Mathinna Beds. These faults are rarely well defined and are largely positioned to outline 'packages' of rocks of similar character or, in some places, they are positioned between zones of differing 'magnetic' trends eg parts of F6, F7. The zone bounded by F6 and F9/F10 contains distinctive ovoid magnetic 'lows' (axes L1 - L3).

To the east a north-northwest fault (F11) is inferred along the margin of a tongue of 'non-magnetic' granite. The parallel fault F12 is inferred along a 'magnetic contact'.

From the imaged data additional 'major' faults or deformation zones can be inferred. These are 'weak' features and hence may relate to the earliest stages of deformation.

Such features trend east-southeast (Z1, Z2), east-northeast (Z3, Z4), north-south (Z5) and northeast (Z6, Z7).

Numerous minor or secondary fault structures are interpreted from offsets of magnetic lithologies or from trends seen in the imaged data.

3. TARGET AREAS

Some general observations relating to the distribution of gold mineralisation can be made based on this interpretation of the aeromagnetic data.

The Mathinna, Dans Rivulet and Alberton Goldfields are within a north-northwest structural zone defined here by faults F6 and F9/F10. The gold mines/prospects are grossly aligned at ~345° ie obliquely to the trend of the interpreted structural zone. The Tower Hill goldfield is on the west margin of this zone.

The Mangana Goldfield is interpreted to be within a separate, parallel, structural zone defined here by faults F4 and F5.

Within the Mathinna/Alberton zone the Mathinna mineralisation is located over the northern end of an ovoid magnetic 'low' (axis L1). This 'low' is bounded to the north by an east-southeast magnetic 'high' (the Z2 zone) which is flanked to the north by an east-southeast magnetic 'low' (axis L2). The Alberton mineralisation is more or less over the axis of a near north trending magnetic 'low' (axis L4). The sources of these magnetic 'lows' are not clear but they may represent alteration zones within or beneath the Mathinna Beds.

The Mangana Goldfield and Alberton Goldfield are over inferred 'deep' granodiorites. Similar rocks are inferred beneath the f_2 axis west of Mathinna. This axis more or less coincides with favourable stratigraphy outlined by Keele. This stratigraphic unit was interpreted (Keele) to be the Mathinna unit sinistrally offset by a northeast transfer fault - the latter is not evident in the magnetic data.

In detail, at Mathinna, there is some evidence for a dextral north-northwest fault (F13), along strike, to the south-southeast of the Golden Gate deposit. This is inferred to extend to the north into the Dans Rivulet Goldfield where it merges with F9. Assuming that north-northeast secondary structures are dilational (Reidel faults) then target zones T1 - T3 can be defined where such structures intersect F13/F9. A dextral north-northeast fault is interpreted 1km to the northwest of Golden Gate; a target zone (T4) is outlined along the presumed extension of this fault beneath the alluvium.

A similar fault is well defined in the Tower Hill area thus defining target zone T5. To the south-southeast similar targets (T6 - T8) are outlined.

In the Mangana area specific targets are not defined since specific dilation zones have not been recognised. The vein direction here is dominantly north-northwest and a general zone of interest extends to the north and south adjacent to fault F5. A similar general zone of interest is adjacent to fault F4; a specific target (T9) is outlined where a dextral secondary fault is interpreted.

A structural setting, somewhat similar to that in the Brilliant area, occurs within the tenements over, or adjacent to, the f_8 fold axis west of Mathinna. The f_8/Z3 intersection is suggested as a more specific zone of interest.

If the ovoid magnetic 'low' (axis L1) is a component in the mineralising process then the southern end of the 'low' is considered to be a 'look alike' setting of the Mathinna area. Hence a general zone of interest T10 is postulated.

328185

ENHANCED AEROMAGNETIC IMAGES (SLIDES)

LODGED WITH MINERAL RESOURCES TASMANIA
(Reference to TCR 95-3791)

All images consist of three scenes on separate slides

Intensity Linear Stretch - monochrome

Intensity Linear Stretch - colour

Intensity Non Linear Stretch - monochrome

Intensity Non Linear Stretch - colour

AGC on North Gradient - monochrome

AGC on North East Gradient - monochrome

AGC on East Gradient - monochrome

AGC on South East Gradient - monochrome

North Gradient - monochrome

North East Gradient - monochrome

East Gradient - monochrome

South East Gradient - monochrome

AGC on 2D - monochrome

AGC on FVD - monochrome

First Derivative (LIN) - monochrome

Second Derivative - monochrome

Gradients Blue North East, Green East, Red South East - colour

Blue North East AGC, Green East AGC, Red South East AGC - colour

Intensity (NL) Shaded With 50% North Gradient - colour

Intensity (NL) Shaded With 50% North East Gradient - colour

Intensity (NL) Shaded With 50% East Gradient - colour

Intensity (NL) Shaded With 50% South East Gradient - colour

Intensity (NL) Shaded With 75% North Gradient - colour

Intensity (NL) Shaded With 75% North East Gradient - colour

Intensity (NL) Shaded With 75% East Gradient - colour

Intensity (NL) Shaded With 75% South East Gradient - colour

Intensity (NL) Shaded With 75% FVD Gradient - colour

Intensity (NL) Shaded With 75% 2D Gradient - colour

GM589:da

APPENDIX E

Channel Sample Record Sheets and Assay Results - Minlab

RESOLUTE RESOURCES LIMITED

328187

Project Name: MATHINNA/MANGANA Prospect Name: ~~MATHINNA~~/MANGANA Tenement No.: 18/91

Sampler: Grah Sample Type: Rock (channel) Sample Submission No: K9409

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
379621					
2					
3					
4					
5					
6					
7					
8					
9					
379630					
1					
2					
3			MANGANA GOLD REEFS CHANNEL SAMPLES		
4			"		
5			"		
6			"		
7			"		
8			"		
9			"		
379640			"		
1			"		
2					
3					
4					
5					
6					
7					
8					
9					
379650					

RESOLUTE RESOURCES LIMITED

328188

Project Name: MATHINNA / MANGANA Prospect Name: MANGANA. Tenement No.: 18/91

Sampler: GRANT. Sample Type: CHANNEL Sample Submission No.: K9415

Note: New Area - New Page & New Sample Type - New Page Date: / /

Sample No.	Drillhole	Interval	Description	Coordinates N	Coordinates E
379771					
2					
3					
4					
5					
6			CHANNEL SAMPLES. – Fingal Gully		
7			" "		
8			" "		
9					
379780					
1					
2					
3					
4					
5					
6					
7					
8					
9					
379790					
1					
2					
3					
4					
5					
6					
7					
8					
9					
379800					

MinLab

328189

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Lot 484 Criddle St
MT MAGNET WA 6638
Tel: (099) 634 532
Fax: (099) 634 531

ANALYTICAL REPORT

Reference No: P52218

Date: 11 JAN 95

AREA COVERED : MATHINNA / MANGANA

SAMPLE TYPE : ROCKS

Samples Received: 20 DEC 94
Order Number : K9409
Project Number : N/A
Samples in Batch: 54

THIS REPORT HAS BEEN PREPARED FOR

RESOLUTE RESOURCES LTD

AND SHOULD BE READ IN CONJUNCTION WITH THE FINAL PAGE

Authorised by: _____
(A.J. Ferguson)

ATTN: G McDONALD
RESOLUTE RESOURCES LIMITED
MANGANA RD
FINGAL TAS 7214

328190

Reference No: P52218 **ATTN: G McDONALD** Page: 1

	Au ppm	Au(R1) ppm	Au(R2) ppm	As ppm	Ag ppm	Bi ppm	Cu ppm	
Detn Limit	0.01	0.01	0.01	10	0.5	2	5	
379633	0.04			410	0.8	<2	50	
379634	0.03			570	0.7	<2	80	
379635	0.04			600	0.8	<2	60	
379636	0.05			2930	1.7	<2	180	
379637	0.43	0.06	0.05	2220	2.4	<2	130	MANCANA
379638	0.01			300	0.7	<2	50	
379639	0.03			420	0.9	<2	40	GOLD REEFS
379640	0.05			70	1.0	<2	60	
379641	0.02			520	1.0	<2	55	(CHANNEL SAMPLES)
379642	0.10			1560	1.1	<2	70	
379643	0.12			850	0.7	<2	40	

Reference No: P52218 **ATTN: G McDONALD** Page: 2

	Au ppm	Au(R1) ppm	Au(R2) ppm	As ppm	Ag ppm	Bi ppm	Cu ppm
Detn Limit	0.01	0.01	0.01	10	0.5	2	5
379643 Rpt	0.12			800	0.7	<2	40

	Fe %	Mn ppm	Pb ppm	Sb ppm	W ppm	Zn ppm
Detn Limit	0.01	5	5	2	2	5
379633	2.30	1610	10	<2	<2	50
379634	2.60	1760	20	<2	<2	80
379635	1.95	630	20	<2	<2	40
379636	5.25	5610	20	<2	<2	190
379637	5.30	7570	20	<2	<2	245
379638	2.80	820	100	5	<2	95
379639	1.85	2020	80	<2	<2	85
379640	2.15	1870	135	<2	<2	125
379641	3.50	2600	15	<2	<2	105
379642	3.00	1060	20	<2	<2	75
379643	2.15	230	30	<2	<2	45

MANGANA
GOLD REEFS
(CHANNEL SAMPLES)

	Fe %	Mn ppm	Pb ppm	Sb ppm	W ppm	Zn ppm
Detn Limit	0.01	5	5	2	2	5
379643 Rpt	2.20	230	25	<2	<2	45

****

% Implies this result reported in %

Au, Au(R1), Au(R2),
Technique - Fire Assay on a 50 gram charge

As, Ag, Cu, Fe, Mn, Pb, Sb, Zn,
Technique - AAS

Bi,
Technique - AAS

W,
Technique - Potassium Bi-Sulphate Fusion/Colorimetric

END OF REPORT

328195

MinLab

MINCULTURE LABORATORIES PTY LTD ACN 008 960 174 TRUSTEE FOR THE MINLAB UNIT TRUST TRADING AS MINLAB

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Tel: (090) 21 5664
Fax: (090) 91 2200

Lot 484 Criddle St
MT MAGNET WA 6638
Tel: (099) 634 532
Fax: (099) 634 531

ANALYTICAL REPORT

Reference No: P60068

Date: 06 FEB 95

MAIA COMPANY : MANGANA WEST MOUNT MAGNET

SAMPLE TYPE : ROCKS (CHANNEL SAMPLES)

Samples Received: 30 JAN 95
Order Number : K9415B
Project Number : N/A
Samples in Batch: 87

THIS REPORT HAS BEEN PREPARED FOR

RESOLUTE RESOURCES LIMITED

AND SHOULD BE READ IN CONJUNCTION WITH THE FINAL PAGE

Authorised by: A J Ferguson
(A.J. Ferguson)

ATTN: G McDONALD
RESOLUTE RESOURCES LIMITED
MANGANA RD
FINGAL TAS 7214

Reference No: P60068 **ATTN: G McDONALD** Page: 2

	Au ppm	Au(R1) ppm	Au(R2) ppm	As ppm
Detn Limit	0.01	0.01	0.01	10
379776	0.02			40
379776 Rpt	0.02			30
379777	0.03			50
379778	0.02			<10

MANGANA

****

% Implies this result reported in %

Au, Au(R1), Au(R2),
Technique - Fire Assay on a 50 gram charge

As,
Technique - AAS

END OF REPORT

GEOLOGICAL SKETCH MAP OF MANGANA GOLDFIELD

SCALE

10 0 10 20 30 40 50 CHAINS

LEGEND

SEDIMENTARY

RECENT ..... ALLUVIUM .....

TERTIARY ..... SANDS, CLAYS, GRAVELS .....

PERMO-CARBONIFEROUS .. MUDSTONE CONGLOMERATES .....

CAMBRO-ORDOVICIAN ..... SLATES & SANDSTONES .....

IGNEOUS

UPPER MESOZOIC ..... DOLERITE (DIABASE) .....

CHARACTERISTICS

CONTOURS

GEOLOGICAL BOUNDARIES

STRIKE & DIP OF STRATA

METALLED ROADS

UNMETALLED ROADS

QUARTZ REEFS

ACTING GOVERNMENT GE

1936

96-3842

VOLUME 2 OF 2

ANNUAL REPORT 1995 EL18/91 MANGANA - RESOLUTE SAMANTHA - MACDONALD G

328198

5 cm

RESOLUTE SAMANTHA LIMITED

EL 18/91 "MANGANA"

OLD WORKINGS

Scale : AS SHOWN	
Date : FEB. '96	FIGURE 9

MANGANA GOLDFIELD

SHEWING REEFS & WORKINGS IN RELATION TO LEASE BOUNDARIES

SCALE 1:1190

0 1 2 3 4 5 CHAINS

5 cm

J. Blake
ACTING GOVERNMENT GEOLOGIST
1936

1583 93G 10ac.
1167 93G 10ac.
1574 93G 10ac.
611 93G 10ac.
11313 M 31ac.
1546 93G
1587 93G 10ac.
1777 G 10ac.
1766 G 20ac.
1775 10ac.

SHARKEY GULLY

- Discovered in 1872 but only worked superficially (to 4.5m)
- Grades of between 9 g/t and 15 g/t reported from trial crushings (MRT)
- Considered to be equivalent of Union Jack and eastern Fingal Reef.

TRENCHES
trial crushing of 9.2 g/t (S)
REEF
TRENCH
UNDERLAY SHAFT 10' DEEP
UNDERLAY TRENCH
UNDERLAY
UNDERLAY SHAFT – sunk 1931
- 20' DEEP
- gold only to 15'
- at 6' below surface 12" vein yielded only a trace.

J.M. BRANNAN M.L.

CUT
TRENCH <0.3 (S)
CUTS 11.0 (S)
SOVEREIGN SHAFT 11.0 (S)
OPEN CUT
TRENCHES
SHAFT
SURFACE STOPES
No1 ADIT COLLAPSED
Pin 8300N 9785E
CAVED SHAFT
CAVED STOPES
No 2 ADIT 0.8 (S)
CAVED STOPE 2 x <0.3 (S).
SHAFT 180' DEEP
ADIT
No 3 ADIT <0.3 (S)
CAVED STOPES
MAIN SHAFT 618' DEEP
No 4 ADIT
at least 20' wide 3' gave 30 g/t (T) reef yielded 765 g/t (T)

MANGANA GOLD REEFS MINE

- First gold reef discovered in Tasmania (1859)
- Worked to 1907 (MRT)
- Production recorded as 791 oz from 3106 tons ore @ 9.7 g/t. MRT
- To 1899 production of 5332 oz 7 dwt 16 grs from 2866 tons ie 5.67 g/t
  Upper parts of reef yielded 15 g/t to 45 g/t but stone in main shaft workings no more than 3.8 g/t to 6.1 g/t (T).
- Maximum width 25' (T)
- 2.7, 2 x 0.5, 0.3, 3 x 0.2, 2 x 0.01, 0 x <0.05 (MRT).

SHARKEY GULLY

1777 G
1'10" 140S: SHAFT 6' CUT
WINZE 15'
1'6" at surface
½" at face
gold only down to 10'
TRENCHES
TRENCH
SHARKEY GULLY ADIT
SHALLOW SHAFT 10' DEEP
TRENCHES
1618'
SHALLOW SHAFTS 18' DEEP
HOLE
TRENCH
HOLES
No 4 SHAFT 30' DEEP
STOPES
No 1 SHAFT 108' DEEP
CAVED STOPES
HOLE
CAVED STOPE 8'
No 2 SHAFT 100' DEEP
No 1 ADIT
STOPES
No 3 SHAFT 100' DEEP
150' LEVEL ADIT
GOLDEN ENTRANCE MINE
No 2 ADIT GOLDEN ENTRANCE

Discovered in 1896. mined from 1900 - 1907 and by tributors to 1924.
Production recorded as 718 t @ 125 g/t.

1766 G
HOLES 1537'
SHAFT
TRENCHES
AA2
AA8 (-30° to 240° MN) 31m
HOLE
TRENCH 1525'
No 2 NORTH ADIT

ARGYLE GOLD DEVELOPEMENT LIM. G.L.

AA7 (-45° to 205° MN) 28m
2" to 5' wide average 2'6" (F)
No 2 SOUTH ADIT
AA5 (-45° to 215° MN) 31m
AA6 (-30° to 160° MN) 31m
ADIT
2' wide
little information but appears to be fairly low grade.
TRENCHES
HOLE
ARGYLE GOLDEN ENTRANCE MINE
No 2 WINZE
No 3 WINZE
No 1 WINZE
true course of reef ? (F).
TRENCHES
AA3 (-45° to 030° MN) 31m
AA4 (-45° to 185° MN) 31m
TRENCH

Discovered in 1927. production recorded as 7.5 to 8 oz from 10 tons, ie 23.7 g/t (MRT)

SOUTH GOLDEN ENTRANCE
HOLE
TRENCH 1477'
TRENCH
HOLE
TRENCH
TRENCH
WINZE
ADIT

SAILORS GULLY
TRACK
ADIT

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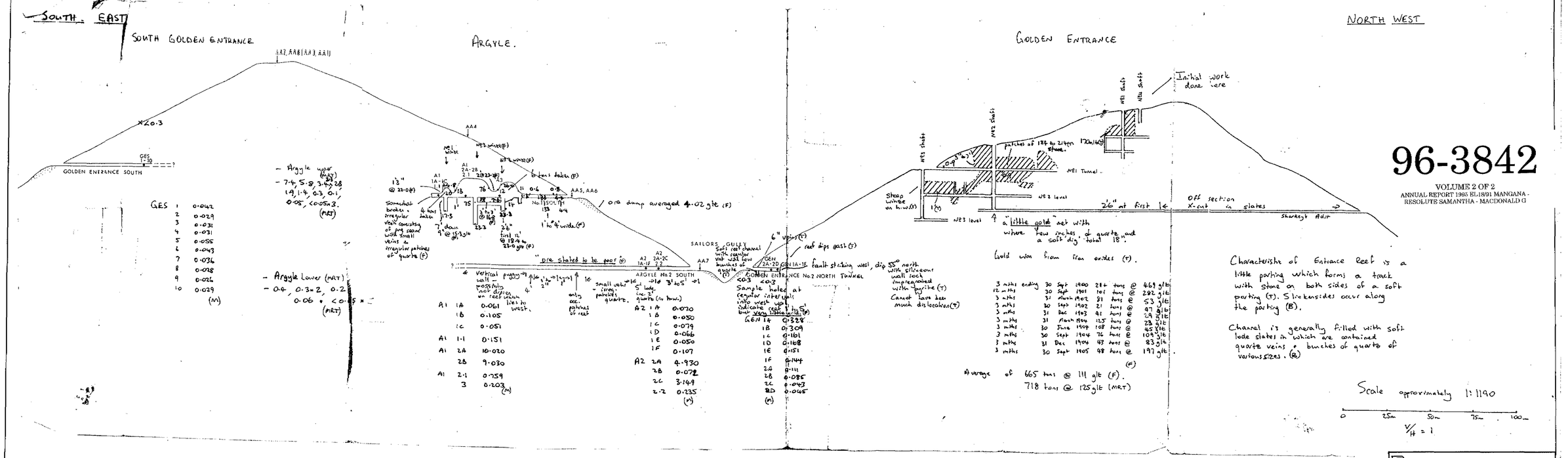
MANGANA GOLD REEFS, ARGYLE GOLDEN ENTRANCE, FINGAL COMPILATION PLAN

Scale: AS SHOWN
Date: FEB. '96
FIGURE 10



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Characteristic of Entrance Reef is a little parting which forms a track with stone on both sides of a soft parting (T). Slickensides occur along the parting (B).

Channel is generally filled with soft lode slates in which are contained quartz veins & bunches of quartz of various sizes. (B)

3 mths ending	30	Sept	1900	284	tons @	469 g/t
12 mths	30	Sept	1901	101	tons @	292 g/t
3 mths	31	March	1902	81	tons @	53 g/t
3 mths	30	Sept	1902	21	tons @	97 g/t
3 mths	31	Dec	1902	41	tons @	29 g/t
3 mths	31	March	1904	125	tons @	23 g/t
3 mths	30	June	1904	108	tons @	45 g/t
3 mths	30	Sept	1904	76	tons @	109 g/t
3 mths	31	Dec	1904	49	tons @	83 g/t
3 mths	30	Sept	1905	48	tons @	197 g/t

(F)

Average of 665 tons @ 111 g/t (F).
718 tons @ 125 g/t (MRT)

Gold won from iron oxides (F).

Sample holed at regular intervals into west wall to indicate reef boundaries (B)

Cannot have been much dislocation (T)

Sample taken from 6" vein (T)

reef dips east (F)

fault striking west, dip 55° north with siliceous wall rock impregnated with pyrite (T)

Sharp wall on hw (F)

"a little gold not with where few inches of quartz and a soft dig, total 18".

"26" at first 1¢

Somewhat broken, irregular vein consisting of grey sand with small veins & irregular patches of quartz (F)

ore dump averaged 4.02 g/t (F)

ore stated to be poor (F)

Vertical quartz veins mostly not dipping on reef plane lies to west.

small veins & irregular patches of quartz.

only occ. patches of reef

Argyle upper (MRT)
- 7.4, 5.8, 3.4, 2.8, 1.9, 1.4, 0.3, 0.1, 0.05, <0.05m3.

Argyle Lower (MRT)
- 0.4, 0.3m2, 0.2, 0.06, <0.05 m

GES	1	0.042				
	2	0.029				
	3	0.031				
	4	0.031				
	5	0.055				
	6	0.043				
	7	0.036				
	8	0.028				
	9	0.026				
	10	0.029				
		(M)				

A1	1A	0.061	A2	1A	0.070	
	1B	0.105		1B	0.050	
	1C	0.051		1C	0.079	
A1	1-1	0.151		1D	0.066	
A1	2A	10.020		1E	0.050	
	2B	9.030		1F	0.107	
A1	2-1	0.759	A2	2A	4.930	
	3	0.203		2B	0.072	
		(M)		2C	3.149	
				2-2	0.235	
					(M)	

GEN	1A	0.328				
	1B	0.309				
	1C	0.161				
	1D	0.168				
	1E	0.151				
	1F	0.144				
	2A	0.111				
	2B	0.085				
	2C	0.043				
	2D	0.045				
		(M)				

328200

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ARGYLE - GOLDEN ENTRANCE REEF
COMPILATION LONG SCTION

Scale: AS SHOWN
Date: FEB. '96
FIGURE 13

5cm

PLATE VIII

MANGANA GOLDFIELD

SHEWING REEFS & WORKINGS IN RELATION TO LEASE BOUNDARIES

SCALE 0 1 2 3 4 5 CHAINS

TO TOWER HILL

METALLED ROAD

TO MANGANA

19 - 2 - 10

W. ROBERTSON PUR.

19 - 3 - 6

W. ROBERTSON PUR.

22 - 2 - 9

W. ROBERTSON PUR.

19 - 1 - 26

W. ROBERTSON PUR.

Worked from 1890s to at least 1939
100s from 10t is reported (MRT),
ie 30.6 g/t total. (MRT)

FINGAL REEF

PINCHER REEF

HARRISON'S GULLY

UNION JACK MINE

CAVED SHAFT 1005'
TRENCH
CAVED ADIT
1016' ADIT
SHAFT
DEEP UNDERLAY SHAFT STOPING → UNDERGROUND
Reef to 0.85m wide 1·93 x 4·02 (B) x 0·15 (B)
SHALLOW HOLE
SURFACE STOPING
UNDERGROUND STOPES
CAVED SURFACE STOPE
MAIN VERTICAL SHAFT
- quartz on dump
∴ reef intersected
CAVED SURFACE STOPE
CAVED SHAFT
CAVED SURFACE STOPES
1051' 1028' ADIT SHALLOW SHAFT
SHALLOW SHAFT
1081' SHAFT
SURFACE STOPE SHALLOW SHAFT
TRENCH UNDERLAY SHAFT worked down to 30m (T).
DEEP VERTICAL SHAFT 1078' - no quartz on dump ∴ no reef intersection

Fingal - average 9 g/t (B)
- greatest depth worked 52 m. (T)
mine does not seen to have been payable" (T)

320A. worked 1867 & c1870 (MRT)
= 0·5, 0·2, 0·1, < 0·05, < 0·05, 0·9, 0·7 (MRT)

W.A. TULLY & F.A. DOWNING PUR.

CUT TRENCH
80° CUT
TRENCH
CUTS
TRENCH
80°
TRENCH 1330'
80°
1435'
CUT TRENCH
VERTICAL SHAFT 1431' 1' wide (T)

1589 93G 5 ac.
1590 93G 5 ac.
1588 93G 10 ac.
1527 93G 10 ac.
1207 93G 10 ac.
1205 93G 5 ac.
1166 93G 10 ac.
1667 93G 10 ac.
622 93G 2 ac.
1584 93G 10 ac.
1583 93G 10 ac.

TRENCH OUTCROP 1364' 60°
3·6m wide TRENCH "Characteristic central parting of Golden Entrance Reef" OPEN CUT 1361' 1329' 70°
TRENCH 1289'
TRENCH
CUT
CUTS
TRENCH
TRENCH
1277'
TRENCH
TRENCH
VERTICAL SHAFT
TRENCH
1300'
TRENCH
1281'
1200'
1250'
1139'
1400'
1369'
1350'
1300'
1250'
1200'

2" to 4" wide sloped to 3m up over 3m².
ADIT 85°
85°
80° ADIT
irregular veinlets "trace" (B)
CUT
TRENCH
275° 943'
TRENCH
80° TRENCH
RODMAN SHAFT 15m 50°
DRIVE 1050'
DRIVE
12" quartz to be broken proved 850'
Rodman 1000'
12·4 g/t (B)
3" 20·8 g/t (B)
85°
900'
950'
1100'
1200'
1250'
1300'

- put down in 1935 on cross vein (Rodman) (B)
- at 3.8m 3" @ 79·2 g/t (B)
adjacent quartzites 19" @ 5·2 g/t (B)
- parcel from upper part of shaft approx 2 tons 1150 @ 26 g/t (B)
Second parcel 23 g/t (B) from 12·2 m down (B)
- at bottom 3" east side of shaft 9·63 g/t (B)
west side of shaft 4·78 g/t (B)
- <0·05, <0·05, <0·05, 14·0, 32·0, 0·1, 21·0, 37·0, 0·8, 0·2, 10·0 g/t (MRT)

2·20m (B) - VERTICAL SHAFT
28° SE 3/6 68-70°
4" wide at bottom of rise Nil (B)
TRENCH
TRENCH
UPPER ADIT CAVED
CAVED GROUND x Nil (B)
83°
most quartz crushed from upper adit (B)
SHALLOW SHAFT 124' VERTICAL SHAFT CAVED AT 15'
ADIT LOWER
TRENCH
TRENCH
1" wide in face (B)
4" to 12" wide (B)

- up to 5·1 m wide (MRT)
- worked intermittently 1887 to 1939. (MRT)
- continuation of Underlay Reef (T)
- 10 oz from 20 tons in 1902 = 15·3 g/t (B)

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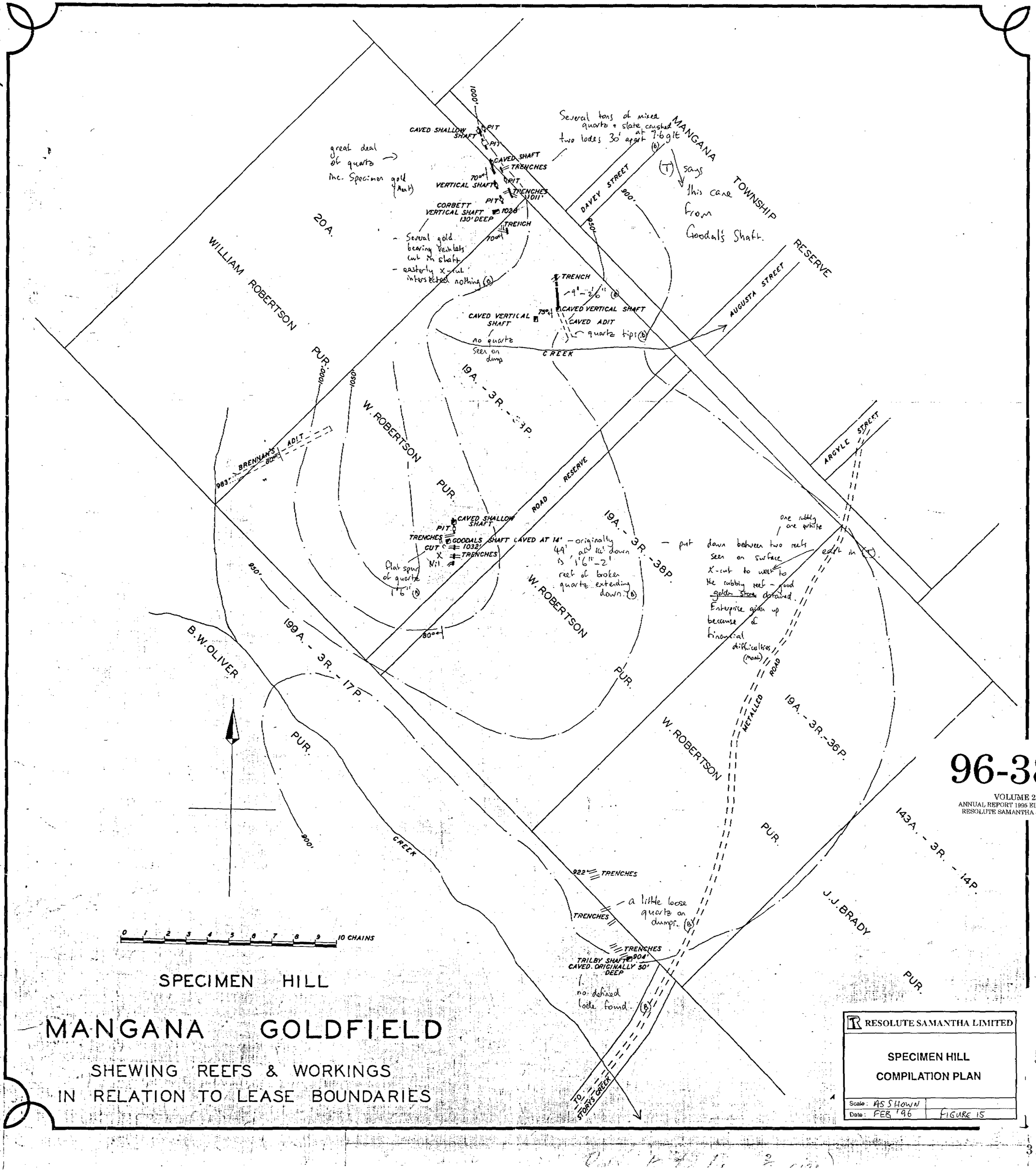
RESOLUTE SAMANTHA LIMITED

PINCHER, FINGAL, UNION JACK COMPILATION PLAN

Scale: AS SHOWN
Date: FEB. '96
FIGURE 14

5 cm



SPECIMEN HILL

MANGANA GOLDFIELD

SHEWING REEFS & WORKINGS IN RELATION TO LEASE BOUNDARIES

RESOLUTE SAMANTHA LIMITED

SPECIMEN HILL
COMPILATION PLAN

Scale: AS SHOWN
Date: FEB '96
FIGURE 15

5cm

9000 E
9500 E
10000 E
10500 E
12500 N
12000 N
11500 N
11000 N
10500 N
9500 N
9000 N
8500 N
7500 N
EL 22/92
1479 P/M
24M/93
EL18/91
AMG 53 96000mN
AMG 378000mE
AMG 375000mE
9700E BASE-LINE
10000E BASE-LINE
SAMPLE NUMBERS

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RESOLUTE SAMANTHA LTD

MANGANA

B-HORIZON SOIL SAMPLE ASS

metres
0 50 100 150 200 250 300 350

DRAWN : | SCALE 1 : 5000 | FIGURE 16.
DATE : 6 MAY 1995 | CHECKED :

MINEMAP MINE PLANNING SOFTWARE

5 cm

7500

8500

9000 E

9500 E

10000 E

12500 N

12000 N

11500 N

11000 N

10500 N

10000 N

9500 N

9000 N

8500 N

8000 N

7500 N

AMG 53 96000mN

1479 P/M

24M/93

92

93

94

AMG 3 73000mE

AMG 3 75000mE

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KEY

Contours Gold in soils; 25, 50 and 100 ppb Au contours.

328204

LEGEND

DRILLHOLE NOTATIONS

Location mark not shaded by value
Values shaded individually.

metres

0 50 100 150 200 300 350

MINEVAR MINE PLANNING SOFTWARE

RESOLUTE SAMANTHA LTD

MANGANA

B-HORIZON SOIL, Au - As RESULTS

DRAWN :

SCALE 1 : 5000

DATE : 22 NOV 1995

CHECKED :

FIGURE 17.

5 cm