

EXPLORATION LICENCE
EL 19/93, RINGAROOMA BAY
TASMANIA

FINAL REPORT ON EXPLORATION
APRIL 1997 TO MARCH 2002

for
Mineral Holdings Australia Pty Ltd
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25th March 2002

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EL 19/93- Ringarooma Bay, Tasmania - Final Report: 1997 - 2002

ABSTRACT

This report describes the work carried out on the evaluation of tin-bearing placers on the licence EL 19/93 which is an important offshore part of the Ringarooma Alluvial Tin Project of Mineral Holdings Australia Pty Ltd.

A new assessment of the alluvial resources has been carried out and has identified an increased Inferred Resource of 194 Million cubic metres of potential tin wash offshore within the outlines of EL 19/93 and T2-MEL. Within the boundaries of EL 19/93, the inferred resources equate to 15M cu m and include an indicated resource of about 3M cu m.

The revised estimate for the contained tin, sapphires and accessory heavy minerals is that the bulk in-situ value of the inferred resource offshore is A\$307 million.

Seabed sampling of small hand samples has outlined an additional 2M cu m as an inferred alluvial tin resource in EL 19/93 as well as discovering an inferred 2M cu m of heavy mineral sands close to the shore of Ringarooma Bay.

Mineralogical studies carried out on concentrates from the Great Northern Plains onshore and on some of the seabed samples offshore have identified the main mineral grains present and confirmed that the offshore resource is sapphire-bearing and has some detectable though small tantalum/niobium values.

Other studies carried out on concentrates show that cassiterite and ilmenite have not acquired any contamination from contact with the radioactive minerals in the alluvial deposits and that sapphires are not amenable to X-ray sorting but that zircons can be successfully beneficiated by this method at the coarser grain size of 0.8mm and above.

The much delayed bulk sampling offshore remains to be carried out reflecting the inherent high cost and uncertainty in the marine dredging industry.

A large number of local and overseas companies have been approached as potential joint venture partners and some have been sent further information. In this way, the marketing of this unusual consolidation of tenements covering the Ringarooma Alluvial Project of this tin, sapphire and mineral sand province is continuing.

A new assessment of all potential alluvial resources both onshore and offshore has lead to a figure of 100,000 tonnes of tin concentrate.

The challenge of this high-risk venture remains and Mineral Holdings has applied for flow-on titles to the area.

EL 19/93 - Ringarooma Bay, Tasmania - Final Report: 1997 - 2002.

1.0 Introduction

EL 19/93 was granted to Mineral Holdings on 28th April 1997 for a maximum of 5 years to 4th April 2002 at Ringarooma Bay to cover the extension into State Waters of the tin-bearing palaeochannel of the Ringarooma River. It was amalgamated with a previous licence (EL 20/97) to give an area of 52 sq km. The licence is an integral part of the Ringarooma Alluvial Tin Project of Mineral Holdings and secures part of the offshore alluvial resources defined by previous exploration in Ringarooma Bay. Application is now being made to secure this area under an appropriate flow-on title.

The remainder of the resources held by Mineral Holdings is situated offshore under the adjacent T2-MEL and onshore over the Great Northern Plains by RLs 8715 and 8723, by EL 38/97 and by ELA 32/2001 (Plan 1).

T2-MEL was applied for by Mineral Holdings Australia Pty Ltd on 19th May 1997 covering some 48 sq km in Commonwealth Waters under the Offshore Minerals Act 1994 and was granted for four years from 30th March 1998 to 30th March 2002. Application is now being made for flow on titles to secure this area.

Retention Licences 8715 and 8723 at Fosters Marshes cover the best defined of the onshore resources and have been renewed till 30th May 2003 over an area of 13 sq km.

EL 38/97 was granted on 6th March 1998 to the south of the RLs at Aberfoyle Hill to cover 4 sq km containing old alluvial tin workings to prospect for clay (bentonite), tin and gemstones. This licence expires on 6th March 2003.

ELA 32/2001 (42 sq km) was applied for on 3rd December 2001 and has not yet been granted. It covers the alluvial resources outlined in the palaeochannel running from Gladstone to Fosters Marshes.

These licences held by the company consolidate, in an area of 159 sq km, the known and potential alluvial resources formed by the palaeochannel of the ancestral Ringarooma River, allow evaluation to proceed in a coherent manner and represent an unusual opportunity for development.

2.0 Previous Exploration by other Companies

The Ringarooma Tin Project of Mineral Holdings Australia Pty Ltd consists of the tin-bearing palaeochannel of the Ringarooma River in NE Tasmania. Previous exploration from the 1960s onwards by a number of companies is summarized by MacArthur (1995) in a pre-feasibility review and resource statement already submitted to the Department. The report deals with the in-situ value of the resources both onshore and offshore and their economics of extraction.

In a new assessment, the above report has been revised by Mason (2000) and supports an increase in the amount and value of the alluvial resources as it considers a more modern tin price, the larger areas of the present tenements and a value attributed to possible sapphire grades in the alluvials. The assessed value of the sapphires has been reached from the considerable work carried out by Mineral Holdings in adjacent areas and in the upstream tributaries of the Ringarooma River catchment. The sapphire grade is expected to range between 0.54 carats/cu. m. and 9.32 carats/cu. m.

The revised estimate for the contained tin, sapphires and accessory minerals at a realised price of A\$9.00/kg tin is that the bulk value of the onshore indicated resource would be between A\$79.5 million and A\$358.5 million. Offshore, the inferred resource would have a bulk value of A\$307 million.

In detail, the onshore and offshore components of the palaeochannel contain **indicated resources** of 109M cu m at 64g tin/cu. m. and 16M cu. m. at 227g tin/cu. m. respectively. In total offshore, there is an **inferred resource** of 194M cu. m. of potential tin wash (Plans 2 & 3) within the area of the present tenements.

The definition of the offshore resources is mostly due to the Tasmanian Offshore Exploration Company, a consortium led by Ocean Mining A. G. of Germany, in the late 1960s which conducted bathymetric and seismic studies and drilled the seabed sediments in Ringarooma Bay with 138 holes (Plan 6).

The main structural elements of the sediments and their contained alluvial resources are outlined in Plan 2. The resources are disposed between the two offshore licences approximately as follows.

The indicated resource of 16M cu m is defined by 18 holes with spacings up to 900m and occupies the plateau and part of the palaeochannel. This resource outline is depicted in red in Plan 3- and occurs mostly in T2-MEL with an arm of perhaps 3M cu m included in EL 19/93.

The much larger inferred resource of 194 M cu m, within which the indicated resource is contained, is taken from Table 5 (Mason 2000) and modified approximately here to reflect the separate tenements.

AREA	TOTAL VOLUME	T2-MEL	EL 19/93
Palaeochannel	27 M cu m	14 M cu m	13 M cu m
Plateau	15 M cu m	15 M cu m	0
Nth Channel	100 M cu m	100 M cu m	0
NW Channel	50 M cu m	50 M cu m	0
Surface	2 M cu m	0	2 M cu m
TOTAL	194 M cu m	179 M cu m	15 M cu m

To bring all of these resources to an indicated or measured status would require a large program of infill drilling along with magnetic, bathymetric and seismic surveying at a cost of several million dollars. Full feasibility or development proposals would benefit from a bulk-sampling program.

3.0 Exploration by Mineral Holdings

A full account of exploration on EL 19/93 has been given to Mineral Resources Tasmania and the Commonwealth in the annual reports for the licence (Duncan & Rhodes, 1998, 1999, 2000 and 2001). Mineral Holding's prime purpose in taking out the licence was to conduct a bulk sampling program to confirm grades, perform mineralogical and mineral dressing studies and assess the sea bed conditions for the dredging of sediments. At the same time, it was hoped that the evaluation and promotion of these resources would lead to the attraction of a suitable joint venture partner with the capital and expertise to conduct the necessary large-scale exploration which could lead to eventual development of the project.

Ultimately, during this four-year term, despite considerable effort and expense, Mineral Holdings was not successful in undertaking a bulk sampling program or in attracting a joint venture partner. Plan 4 shows the potential bulk sampling sites.

Negotiations and studies took place with various dredging companies namely- Van Oord, Westham and Marcon- to access suitable dredging technologies but for a variety of technical, weather-related or equipment-availability reasons, the program did not take place.

During the term, over twenty six Australian and overseas companies were approached as potential joint venturers, some asking for additional information for evaluation and several making field inspections of the project. The companies included Norton Jackson, SA; Billiton Australia, Vic; Bemax Resources, Qld; Monto Minerals, Qld; Lion Selection group, Vic; Iluka Resources NL., WA; Centrex Resources NL, SA; Westralian Sands, WA; Ashton Mining Ltd, Vic; Marlborough Resources, NSW; and Namco, South Africa as well as Trans-Hex International, Canada; Kenmare; De Beers; Anglo Australian Resources; Auridium; Nimbus; Australian Bulk Minerals; Du Pont, USA; Kerr-McGee, USA; and Kronos, Norway.

SouthernEra Resources of Toronto were most recently conducted over the areas but declined to be involved. Namco of South Africa did show some interest and were sent additional material for evaluation.

Contacts were also made with sapphire companies and interests overseas in North America and Gibraltar.

3.1 Seabed Sampling Program

While awaiting the availability of a suitable dredge to carry out the bulk-sampling program, Mineral Holdings investigated the seabed using abalone divers.

Grab sampling of seabed sediments producing samples each nominally about 0.5kg

has outlined a 4sq km area of greater than 100g/t Sn. The area sits astride the palaeochannel in an east –west orientation and is entirely within EL 19/93. Taking the zone of influence of each sample as 0.5m, this has added 2M cu m to the resource inventory and appears as “Surface” on Plan 2 and in the above Table.

Another zone found by this sampling in EL 19/93 is the Old Shoreline Prospect which lies inshore in 15m water depth and extends in a 4km zone, 500m wide and parallel to the current beach giving it an NE –SW orientation. The zone has enhanced TiO₂ and ZrO₂ (but poor tin) surface values.

Because of the increasing depth of water (plus 30m) in T2-MEL only about 8% of the samples were collected in that licence with 92% being in EL 19/93 (Plan 5). As well as providing metal assays, the sampling gave additional information on the sediments, structures, vegetation and depth of the seabed. Reflecting the partition of resources between the two ELs, only one potential bulk sample site was allocated to EL 19/93 although it was obvious from results accumulating that a variation of the program would have to be submitted to test the Surface Prospect as well as the Old Shoreline Prospect.

The first mineralogical survey was carried out on the seabed sediments using a composite sample of 57.6kg from the palaeochannel which is likely to indicate the heavy mineral species to be encountered in EL 19/93. The minerals identified were cassiterite, zircon, rutile, garnet, magnetite, ilmenite, spinel, pyrite and phosphate and significantly two blue sapphire grains. This is the first indication that the offshore alluvials are sapphire-bearing which is to be expected from their derivation from the Ringarooma River catchment. This agrees with other exploration work being carried out on the Great Northern Plains particularly the bulk testing of wash and tails at Macgregors and in the upper Ringarooma catchment in the mountains under SEL 22/99 for gems where all of the above minerals (other than phosphate) have been identified along with monazite, gold and topaz in the present drainage.

3.2 Further Mineralogical Results

Following a concern about the radioactivity of the potential heavy mineral suite contained in the placers both onshore and offshore, a comprehensive study was commissioned from Amdel using a concentrate previously- sluiced some years ago from the Great Northern Plains.

It was found that the uranium and thorium are almost exclusively contained in discrete grains of monazite, xenotime and zircon and that the other minerals (particularly cassiterite) have not acquired U or Th from contact or association with these radioactive minerals in the alluvial deposits.

Hence there would be no concern with radioactivity in the processing, stockpiling and transport of cassiterite or ilmenite in any future operation.

As part of study to improve sapphire and zircon recoveries from the Ringarooma Tin Project alluvials, some samples were tested by Ultrasort Diamonds Pty Ltd, Perth WA. Three samples were tested, two from the Ringarooma catchment at Pioneer and in the mountains at Spinel and Black creeks, tributaries of the Weld River.

Extrapolation of these results would be of significance in the treatment of the alluvial resources both offshore and onshore.

It was concluded by testing that sapphires do not fluoresce under x-rays but that zircon could be separated by this method provided that the grain size was above 1mm i.e. coarser than the beach sand range.

3.3 Recent Results

During the final year of the licence, additional geochemical work was carried out on the offshore samples to evaluate the tantalum /niobium values in the sediments in comparison with the same metals in the alluvial wash of the Great Northern Plains.

Twenty-one grab samples of sediment were selected for investigation divided among three areas – A, B and C. Areas A and B each had nine samples and C had three. Area A is the western part of the Surface anomaly outside the palaeochannel and B is the eastern part of the Surface anomaly within the palaeochannel. Area C is in the Old Shoreline anomaly. Two samples are from T2-MEL and the rest from EL 19/93.

Each sample was passed through the magnetic separator to produce a mag. 1, a mag. 2 and a non mag. fraction. Each non mag. fraction of each sample was analysed singly and the mag. fractions for the samples in each area were combined and analysed together because of the small yield.

The masses of the various fractions are given in the Appendix as are the analytical results from Amdel. Each of the non mag. fractions were analysed for Sn, Zr, Ta and Nb by XRF and subsequently Ta was done again by ICP to reduce the detection limit to 1ppm. The combined magnetic fractions for each area were analysed for Sn, Ta and Nb.

The results are summarized in Table 1 and show that on the average the grades of Ta₂O₅ may be up to 4.4g/LCM. and Nb₂O₅ grades average 1.24g/LCM for area A, 1.61g/LCM for area B and 9.54g/LCM for area C. Surprisingly, the grades are nearly an order of magnitude higher for the tin-poor Old Shoreline prospect (Area C) which suggests that the Ta/Nb signature may be contained in rutile or in some discrete, yet to be identified, Ta/Nb mineral. The grades expressed as LCM as extrapolated from 0.5kg grab samples must be treated with some caution as small samples are no substitute for bulk sampling.

Combining the average figures for Ta₂O₅ + Nb₂O₅ in the above tin rich areas A and B gives values of up to 5.64 and 6.01g/LCM for the wash. This compares with the values of tin wash from the Santos drilling on the Great Northern Plains (Kinnane 2001) where values of between 0.3 and 7.3g/cu m have been calculated once again using small samples from drill holes. Recent bulk sampling at Aberfoyle Hill and Taylors, former alluvial tin mines on the Great Northern Plains, has given values of between 0.35 and 0.54g/LCM at Aberfoyle and 0.4 and 1.2g/LCM at Taylors for the richer tin samples in the residual wash. From an assessment of the drilling on the Great Northern Plains, Kinnane has proposed an average value of 1.2g/cu m for the overall resource figure adding an in-situ value of \$0.20 per cu m to the heavy mineral wash.

3.4 Further information

A new geological and resource statement has recently been prepared for the Ringarooma Tin Project (Kinnane 2001). This report is the most comprehensive to date considering the main tin deposits of the Great Northern Plains and their extension offshore into Ringarooma Bay as well as the important satellite deposits of Pioneer, Monarch, Endurance and Scotia as well as a number of other smaller deposits in the lower Ringarooma catchment.

The report discusses a variety of possible geological origins for the range of alluvial deposits involving a variety of depositional environments.

The study involves recalculated resource figures from the previous drilling and the removal of barren overburden from the resource base and now gives a resource figure, largely contained in the two RLs 8715 and 8723, of 41.8M cu m at an average grade of 199.1 g/cu m of 70% SnO₂ concentrate. The other heavy mineral and sapphire credits are also considered with average grades per cu m liable to be ZrO₂ 100g, TiO₂ (rutile) 100g, ilmenite 100g, gold 10mg, tantalite/columbite 1.2g and sapphire 1g. This gives an in-situ value of the wash as \$A 3.60/cu m.

This has obvious implications for the offshore alluvials which when considered with the wide range of onshore deposits may be part of a resource base of between 90,000 and 110,000 cu m of tin concentrates within the present Ringarooma Tin Project tenements.

4.0 Conclusions

- 1) Alluvial tin resources in Ringarooma Bay are estimated to be 194M cu m as an in-situ **inferred resource**. EL19/93 contains approximately 15M cu m while the remaining 179M cu m lie in the adjacent T2-MEL.
- 2) An **indicated resource** of 16M cu m at 227g tin/cu m is contained within the inferred resource, 3M in EL 19/93 and 13M in T2-MEL.
- 3) As a result of exploration in the past four years, Mineral Holdings has added 2M cu m as an inferred alluvial tin resource on the seabed in EL 19/93.
- 4) In addition, another 2M cu m of heavy mineral sands with Ti and Zr credits is inferred close to the shore in Ringarooma Bay also within EL 19/93.
- 5) The source of the tin placers in EL 19/93 and T2-MEL is the palaeochannel of the Ringarooma River which runs south through EL 19/93 onshore under the coastal sand dunes and connects with the deposits on the Great Northern Plains in RLs 8715 and 8723.
- 6) The important plateau structure in T2-MEL which hosts most of the indicated resource and which trends east-west may be an ancient strand line formed at a time of stable sea level by reworking of the palaeochannel deposits.

- 7) The blanket type deposits of the Great Northern Plains may be of estuarine origin formed by reworking of channelised alluvial deposits like Scotia, Monarch, Delta and MacGregors.
- 8) An assessment of all of the alluvial resources of the lower Ringarooma catchment both onshore and offshore leads to an order of magnitude figure of 100,000 tonnes of tin concentrate.
- 9) Mineral Holdings has so far been unable to attract a major joint venture partner to carry out the substantial work required to bring the resources to development.
- 10) The challenge of this high-risk venture remains and Mineral Holdings has applied for appropriate flow-on titles for this area.

5.0 Expenditure

Exploration expenditure committed by Mineral Holdings to EL 19/93 during the four years of life of the licence and reported to Mineral Resources Tasmania annually is as follows-

Year One	to end March 1999	\$79,065
Year Two	to end March 2000	\$29,486
Year Three	to end March 2001	\$30,684
Year Four	to end December 2001	\$8,160
Plus estimate to end March 2002		\$1000
Total		\$148,395

6.0 Environment

The grab sampling program on the seabed created no permanent damage or disturbance as the small holes were filled in almost immediately by collapse and tidal flow. The samples were processed elsewhere to concentrate the heavy minerals so there was no turbidity. Other field activity has been restricted to site visits with potential joint venture partners. Consequently there was no requirement for rehabilitation.

7.0 Future Program

Mineral Holdings hopes to continue its marketing and promotion of this area to suitable joint venture partners, putting together and carrying out an acceptable bulk sampling program of the offshore alluvials and generally acquiring ancillary mineralogical information on the contained heavy minerals and sapphires.

The area of EL 19/93 is an important part of the Ringarooma Alluvial Tin Project, the tenements of which, studies now suggest, contain a resource base of 100,000 tonnes of tin concentrate. Consolidating this resource within one project, gives the best chance of the resources eventually being developed.

Mineral Holdings hereby applies for a suitable flow-on title to continue its work. As extensive drilling has outlined the alluvial tin resources within EL19/93 to an **inferred resource** status of about 15M cu m of wash within which lies 3M cu m at an **indicated** status, Mineral Holdings believes that a **Retention Licence** may be more appropriate considering the level of resource definition than another Exploration Licence.

Award of a Retention Licence as a flow-on title would recognise the high-risk in exploring offshore, the difficulty of attracting big players as joint venture partners and the current weakness in the tin price over the last several years.

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APPENDIX

Subject: Ringarooma Bay samples - magnetic separations**Date:** Thu, 22 Nov 2001 10:04:41 +1100**From:** "Lawry Rhodes" <LJRHODES4MC@tassie.net.au>**To:** "Neil Thomas" <tominex@bigpond.com.au>**CC:** "David Duncan" <duncanr@tassie.net.au>, "Neil Kinnane" <nkinnane@ozemail.com.au>

Sample No.	Mass g			Distribution %		
	Magnetics 1	Magnetics 2	Non-magnetics	Magnetics 1	Magnetics 2	Non-magnetics
43	0.46	0.71	104.4	0.4	0.7	98.9
58	0.86	1.21	128.3	0.7	0.9	98.4
60	1.54	1.38	186.4	0.8	0.7	98.5
61	0.57	0.86	122.8	0.5	0.7	98.8
65	Sample not found					
66	2.30	2.28	173.0	1.3	1.3	97.6
67	1.02	1.22	119.6	0.8	1.0	98.2
81	1.04	1.41	133.5	0.8	1.0	98.2
82	0.77	0.99	112.8	0.7	0.8	98.5
86	1.16	1.81	127.5	0.9	1.4	97.7
96	0.12	0.30	143.4	0.1	0.2	99.7
97	Sample not found					
104	Sample not found					
120	0.35	0.22	36.7	0.9	0.6	98.5
272	0.66	1.71	157.6	0.4	1.1	98.5
316	0.78	1.58	350.8	0.2	0.5	99.3
319	1.08	2.75	257.9	0.4	1.1	98.5
320	2.06	3.59	421.3	0.5	0.8	98.7
324	1.11	1.77	766.4	0.2	0.2	99.6
325	0.90	1.66	278.6	0.3	0.6	99.1
335	2.27	2.63	366.7	0.6	0.7	98.7
364	Sample not found					
367	1.11	4.42	399.9	0.3	1.1	98.6
369	1.84	8.18	456.4	0.4	1.7	97.9
373	0.91	3.65	247.0	0.4	1.4	98.2

Magnetic 1 and magnetic 2 fractions were generally similar in appearance and could be combined. Little or no presence of black mineral. An occasional spinel to about 2mm was seen.

Individual weights are too small for the magnetics to be individually assayed. I suggest that the samples be divided into three geographical regions and that the magnetics for each region be composited for assay.

Little or no ilmenite is evident, so I suggest that the non-magnetics be assayed for TiO₂ which will give an indication of the rutile content. Also assay for tin and ZrO₂ which will check the earlier assays.

Regards

Lawry Rhodes

Ringarooma Bay

Table 48

Sample Site No.	Calculated Head Assays				
	Sn g/t		Zr g/t		
	Previous	Recent	Previous ZrO ₂	Expressed as Zr	Recent
43	122	121	80	59	44
58	222	101	140	104	45
60	188	98	360	267	157
61	185	114	150	111	92
66	155	427	100	74	60
67	252	197	160	118	99
81	176	91	80	59	64
82	107	50	60	44	63
86	214	90	160	118	118
96	50	83	100	74	75
120	186	457	60	44	75
272	200	542	130	96	286
316	330	109	140	104	64
319	694	264	210	155	91
320	103	133	280	207	105
324	<30	34	<100	<74	40
325	<27	38	<90	<67	103
335	306	151	130	96	75
367	<30	18	480	355	266
369	<30	27	630	466	450
373	<30	19	850	629	540



Job: 1AD2602A
O/N:

Final

ANALYTICAL REPORT

SAMPLE	Sn	Ta	Nb	Zr	TiO2	SAMPLE	Ta
43	150	<10	<2	55	--	43	<1
58	125	<10	<2	56	--	58	<1
60	100	<10	<2	170	--	60	<1
61	115	<10	<2	115	--	61	<1
66	480	<10	<2	68	--	66	2
67	270	<10	<2	135	--	67	<1
81	120	<10	<2	85	--	81	<1
82	66	<10	<2	83	--	82	<1
86	99	<10	<2	130	--	86	<1
96	83	<10	<2	75	--	96	<1
120	600	<10	<2	99	--	120	<1
272	550	<10	<2	290	--	272	2
316	120	<10	<2	70	0.050	316	<1
319	270	<10	<2	93	0.080	319	<1
320	145	<10	<2	115	--	320	<1
324	34	<10	<2	40	--	324	<1
325	42	<10	<2	115	--	325	<1
335	200	<10	<2	99	0.060	335	<1
367	18	<10	<2	270	--	367	2
369	28	<10	4	450	--	369	<1
373	19	<10	3	550	--	373	<1

SAMPLE	Sn	Ta	Nb
AREA A	600	<10	39
AREA B	470	<10	41
AREA C	100	<10	80

UNITS	ppm	ppm	ppm
DET.LIM	4	10	2
SCHEME	XRF1	XRF1	XRF1

UNITS	ppm	ppm	ppm	ppm	%	UNITS	ppm
DET.LIM	4	10	2	4	0.005	DET.LIM	1
SCHEME	XRF1	XRF1	XRF1	XRF1	IC4	SCHEME	IC4M

FOSTER ISLANDS NATURE RESERVE

90

90

CAPE PORTLAND

Tobrukunna Bay

Lanoma Point

T2-MEL

Semaphore Hill

Home Beach

Foster Inlet

Lemons Beach

Petal Point

Lagans

DP spring tank

DP

70

80

80

80

80

80

80

80

80

80

80

80

80

80

80

80

80

80

R O O M A

B A Y

EL 19/93

80

80

Tomahawk Island

Tomahawk Point

Tomahawk

70

80

Campbells Point

Boobyalla Inlet

Boobyalla

RL 8715

RL 8723

ELA 32/2001

EL 38/97

PLAN 1 - LOCALITY MAP AND TENEMENTS, RINGAROOMA PROJECT

Tomahawk River

Tomahawk

Tomahawk

Tomahawk

Tomahawk

Tomahawk

Tomahawk

70

80

Monarch Flats

Monarch

Monarch

Monarch

Monarch

Monarch

80

80

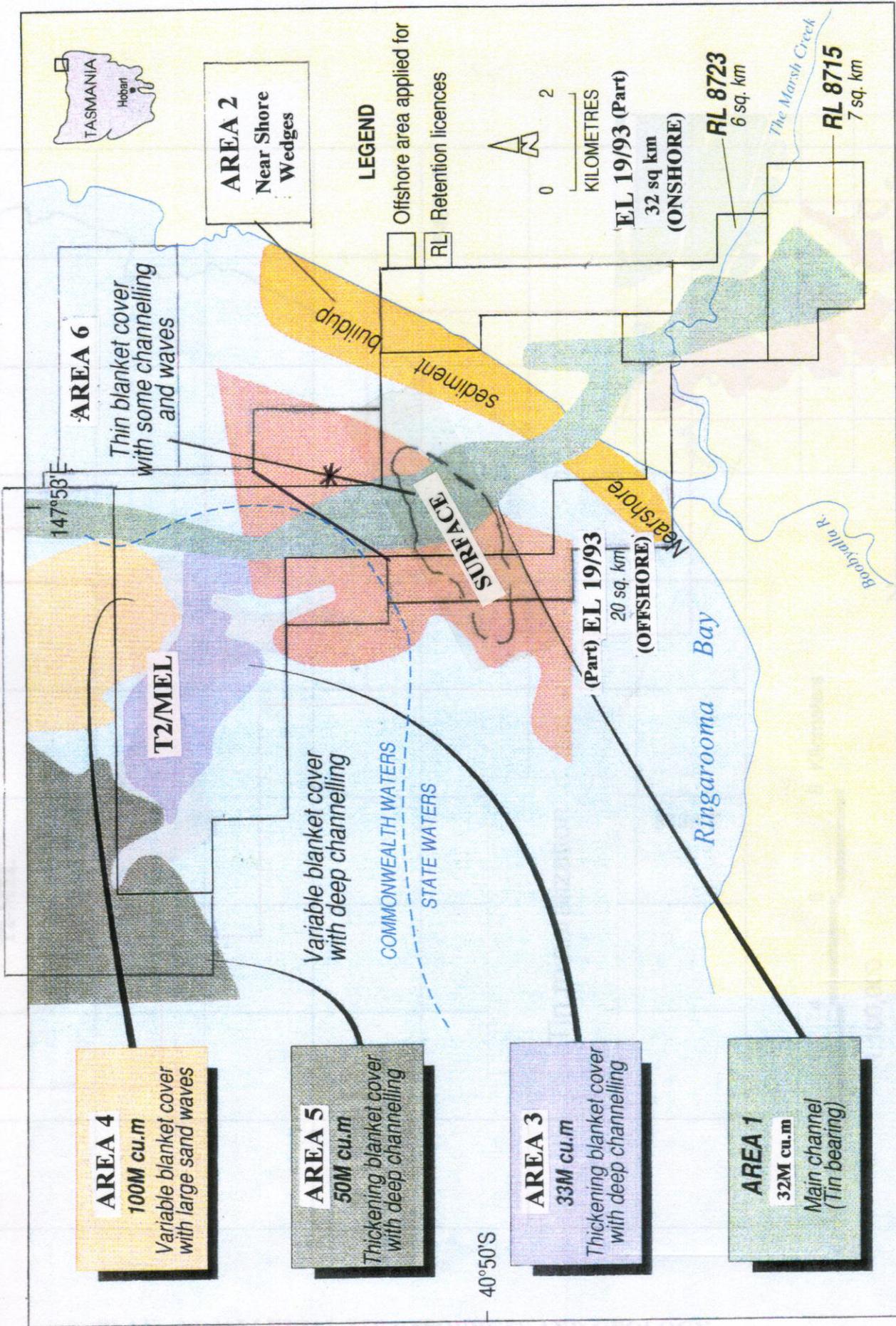
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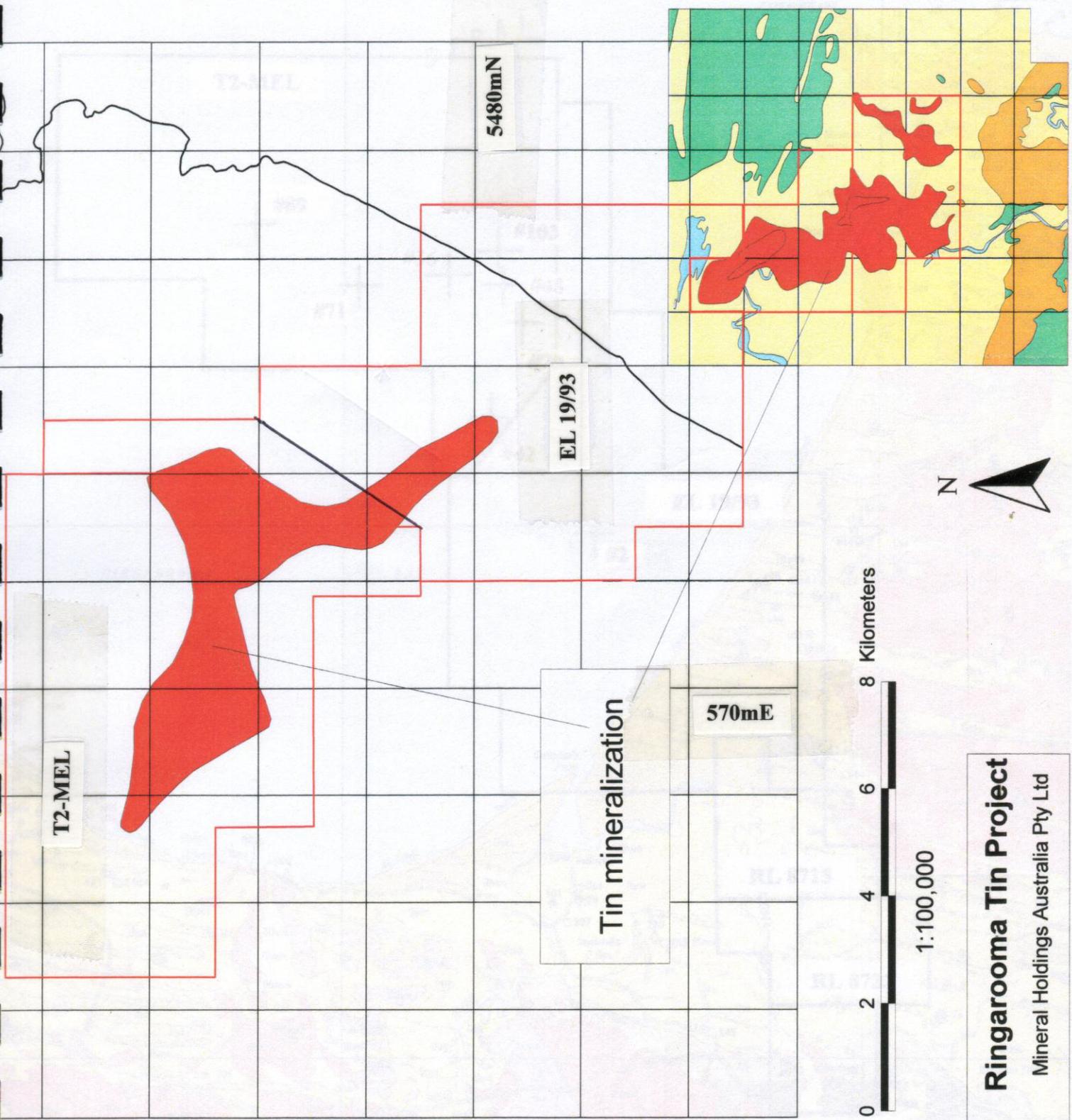
Tomahawk



THE RINGAROOMA ALLUVIAL TIN PROPERTY – TENEMENT PLAN AND POTENTIAL TIN RESOURCES

Figure 2

PLAN 2

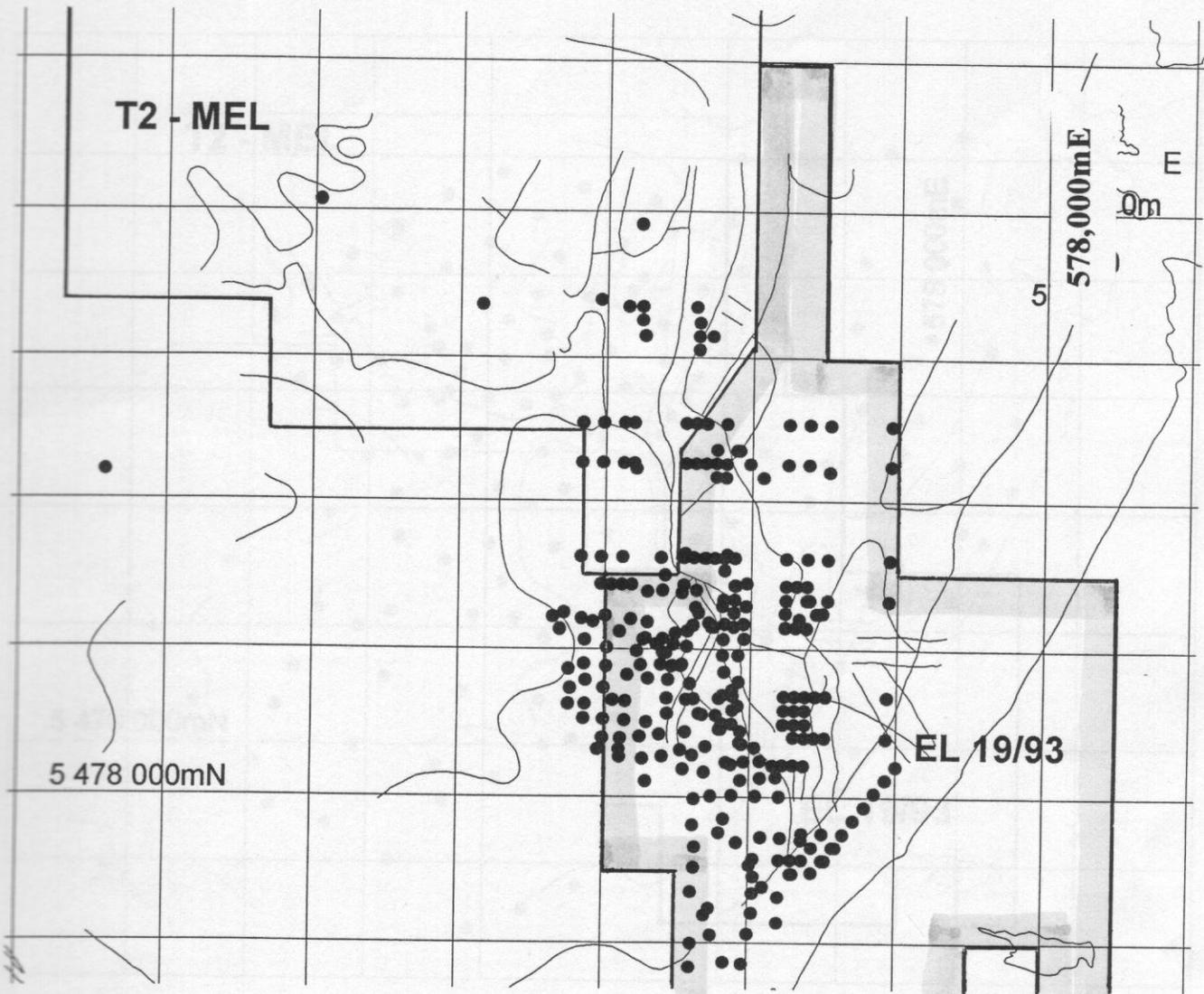


PLAN 3 - ALLUVIAL TIN RESOURCES AND GEOLOGY

AND OFFSHORE SAMPLING SITES, RINGAROOMA PROJECT

Ringarooma Tin Project
 Mineral Holdings Australia Pty Ltd

RINGAROOMA BAY TIN PROJECT



MINERAL HOLDINGS AUSTRALIA PTY LTD



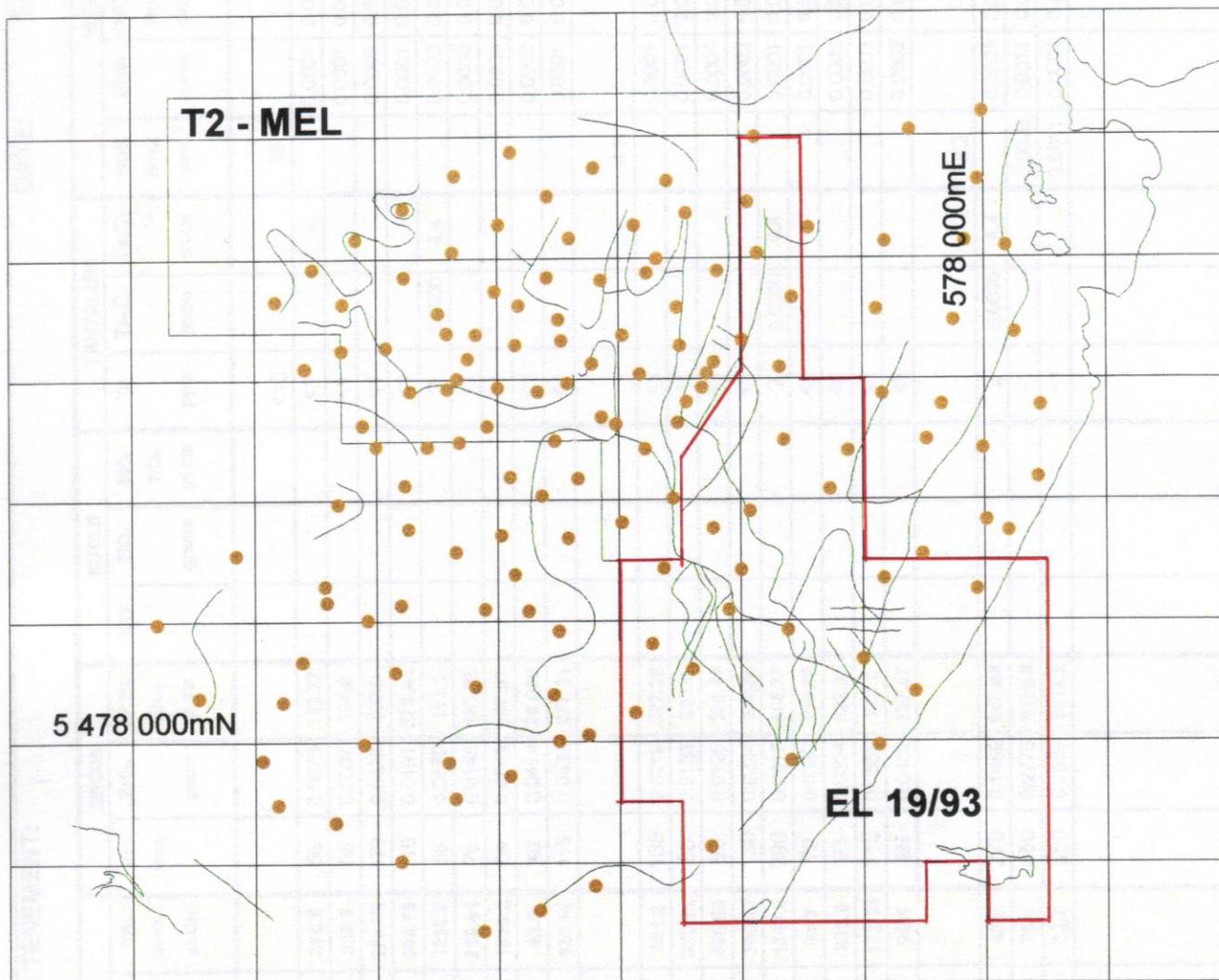
Seabed Sediment Sample Localities

- Newdata.shp
- Bound.shp
- Amg.shp

PLAN 5



RINGAROOMA BAY TIN PROJECT



MINERAL HOLDINGS AUSTRALIA PTY LTD



Drill Hole Localities

- Sites2.shp
- ~ Bound.shp
- ~ Amg.shp

PLAN 6



TABLE 1 - Surface Sample Analysis

PROJECT: OFFSHORE

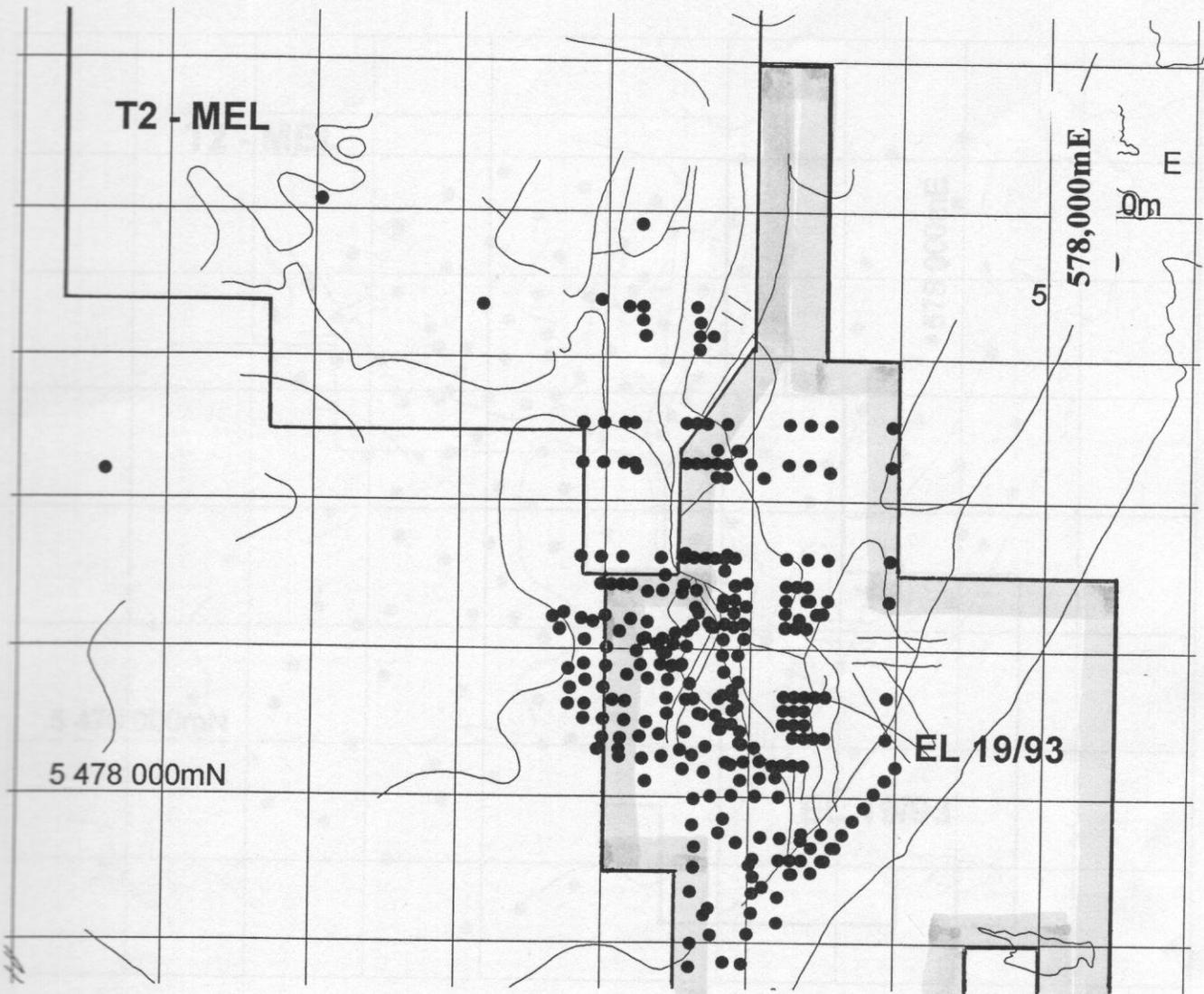
TENEMENT:

DATE: 17-Dec-01

HOLE NO	MASS		CASSITERITE			ZIRCON		RUTILE		TANTALUM			NIOBIUM						
	NON MAG grams	MAG grams	TOTAL SnO ₂ grams	70% SnO ₂ g/t	70% SnO ₂ g/LCM	Zr ppm	ZrO ₂ grams	67.2% ZrO ₂ g/LCM	%Ti	TiO ₂ grams	53% TiO ₂ g/LCM	Ta ppm	Ta ₂ O ₅ grams	Ta ₂ O ₅ g/LCM	NON MAG ppm	MAG grams	TOTAL Nb ₂ O ₅ grams	Nb ₂ O ₅ g/t	Nb ₂ O ₅ g/m
AREA A																			
43	104.4	1.17	105.57	0.0199	0.0009	0.0208	220.5	396.8				<10			39	0.0001	0.0001	0.6185	1.11
58	128.3	2.07	130.37	0.0204	0.0016	0.0219	188.5	339.3				<1				0.0001	0.0001	0.8861	1.60
60	186.4	2.92	189.32	0.0237	0.0022	0.0259	153.2	276.78				<1				0.0002	0.0002	0.8608	1.55
61	122.8	1.43	124.23	0.0179	0.0011	0.0190	171.5	308.73				<1				0.0001	0.0001	0.6424	1.16
66	173.0	4.58	177.6	0.1055	0.0035	0.1090	687.2	1236.9				2	0.0000	4.4		0.0003	0.0003	1.4394	2.59
96	143.4	0.42	143.82	0.0151	0.0003	0.0154	120.2	216.41				<1				0.0000	0.0000	0.163	0.29
120	36.7	0.57	37.27	0.0280	0.0004	0.0284	853.4	1536.2				<1				0.0000	0.0000	0.8535	1.54
324	766.4	2.88	769.28	0.0331	0.0022	0.0353	51.4	92.5				<1				0.0002	0.0002	0.2089	0.38
325	278.6	2.56	281.16	0.0149	0.0020	0.0168	67.0	120.54				<1				0.0001	0.0001	0.5081	0.91
AREA B																			
67	119.6	2.24	121.84	0.0199	0.0013	0.0212	195.1	361.2				<1			41	0.0001	0.0001	1.0787	1.9416
81	133.5	2.45	136.0	0.0204	0.0015	0.0218	179.8	323.72				<1				0.0001	0.0001	1.0573	1.9032
82	112.8	1.76	114.56	0.0237	0.0011	0.0247	241.7	435.08				<1				0.0001	0.0001	0.9014	1.6225
86	127.5	2.97	130.47	0.0179	0.0018	0.0197	169.2	304.52				<1				0.0002	0.0002	1.3356	2.404
272	157.6	2.37	160.0	0.1055	0.0014	0.1069	748.3	1346.9				2	0.0000	4.4		0.0001	0.0001	0.8692	1.5646
316	350.8	2.36	353.16	0.0151	0.0014	0.0165	52.4	94.3				<1				0.0001	0.0001	0.3921	0.7067
319	257.9	3.83	261.73	0.0280	0.0023	0.0303	129.5	233.0				<1				0.0002	0.0002	0.8586	1.5454
320	421.3	5.65	427.0	0.0331	0.0034	0.0365	95.7	172.19				<1				0.0003	0.0003	0.7764	1.3976
335	366.7	4.90	371.6	0.0149	0.0029	0.0178	53.6	96.5				<1				0.0003	0.0003	0.7736	1.3926
AREA C																			
367	399.9	5.53	405.43	0.0091	0.0007	0.0098	27.19	48.9				2	0.0000	4.4		0.0006	0.0006	1.5615	2.8107
369	456.4	10.02	466.42	0.0162	0.0013	0.0175	42.03	76.6				<1			0.0026	0.0011	0.0038	8.060	14.509
373	247.0	4.56	251.6	0.0060	0.0006	0.0065	29.11	52.4				<1			0.0011	0.0005	0.0016	6.290	11.323

TABLE 1 - Seabed Sample Analyses

RINGAROOMA BAY TIN PROJECT



MINERAL HOLDINGS AUSTRALIA PTY LTD



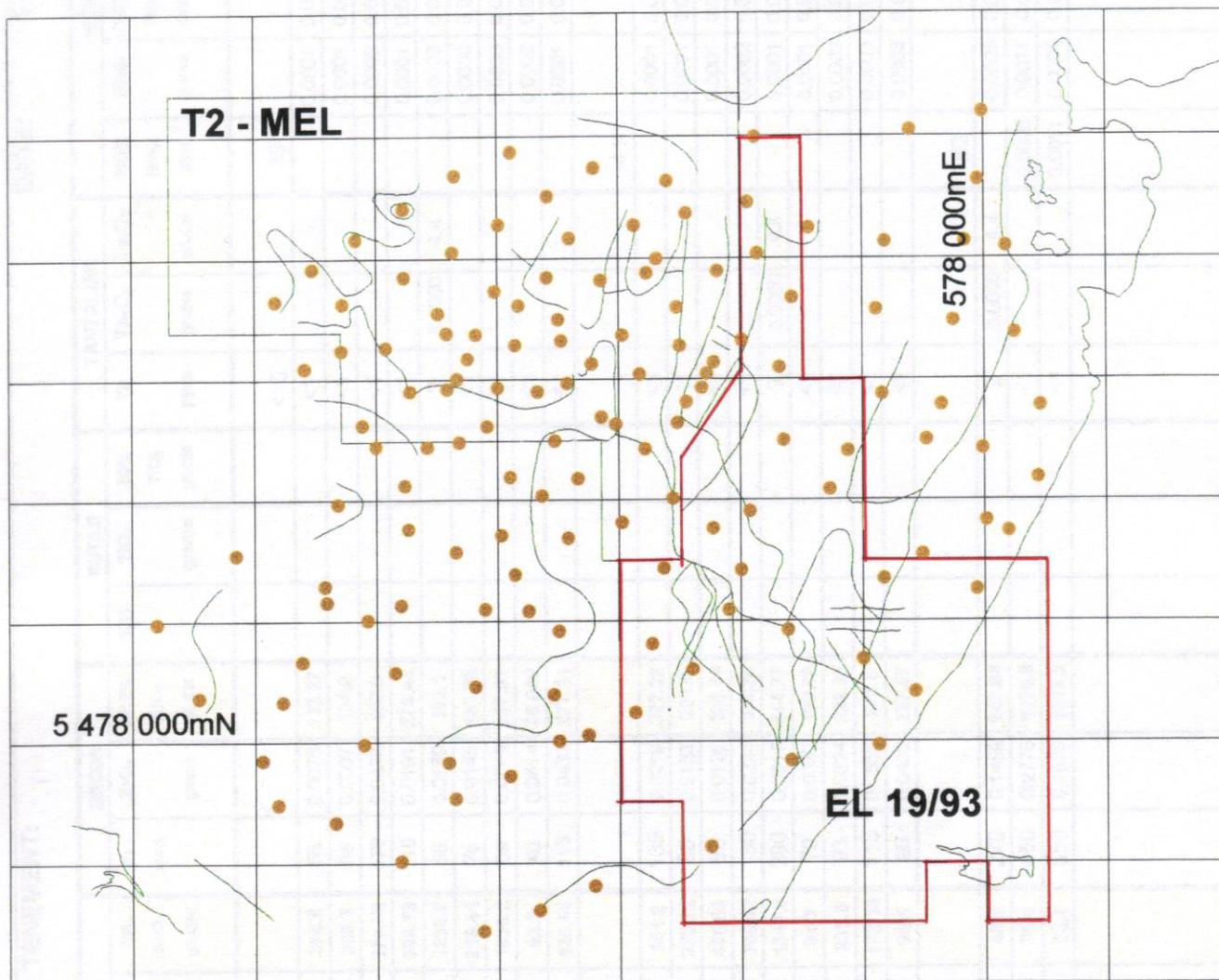
Seabed Sediment Sample Localities

- Newdata.shp
- Bound.shp
- Amg.shp

PLAN 5



RINGAROOMA BAY TIN PROJECT



MINERAL HOLDINGS AUSTRALIA PTY LTD



Drill Hole Localities

- Sites2.shp
- ~ Bound.shp
- ~ Amg.shp

PLAN 6

