

TCR 98-4240

PACIFIC NEVADA PTY LTD  
PO BOX 7214 Cloisters Square  
Perth WA 6850

100855

**CREA FILE**

MINERAL RESOURCES  
12 NOV 1998  
TASMANIA

**EL28/97 REEKARA**

**MICROFILMED**  
FICHE No. 014858-

MINERAL RESOURCES
EL28/97
12 NOV 1998
SEE FOLIO 26

**REPORT ON EXPLORATION  
ACTIVITY  
12-12-97 TO 12-12-98**

Volume 1 of 1

98-4240

ANNUAL REPORT-EL 28/97  
REEKARA-PACIFIC NEVADA  
S WESTBROOK

Prepared by: Sean Westbrook, Exploration Geologist  
Pacific Nevada Mining Pty. Ltd. November 1998

dition: Pacific Nevada Pty. Ltd - Perth  
- Hobart  
Tasmania Development and Resources

**CONTENTS**

1.0	<b>Introduction</b>	1
2.0	<b>Regional Geology</b>	1
3.0	<b>Summary of Previous Exploration</b>	2
4.0	<b>Exploration Concepts</b>	6
5.0	<b>Known Mineralisation</b>	6
6.0	<b>Exploration Activities by Pacific-Nevada</b>	7
	5.1 STREAM SEDIMENT SAMPLING	7
	5.2 GEOLOGICAL MAPPING AND ROCK CHIP SAMPLING	7
	5.3 RESULTS	7
7.0	<b>Proposed Exploration</b>	8
8.0	<b>Expenditure</b>	8
9.0	<b>References</b>	8

**LIST OF FIGURES**

Figure 1 Location of Exploration License 28/97, Reekara.

**LIST OF TABLES**

Table 1 Summary of Previous Exploration

**LIST OF PLATES**

Plate 1 Stream Sediment Sample Locations.

Plate 2 Rock Chip Sample Locations.

**LIST OF APPENDICES**

Appendix 1 Sample location and analytical data tables.

## 1.0 Introduction

King Island is situated at the western entrance to Bass Strait 50-60 km north west of Tasmania (Cape Grim). The island is approximately 60 km long and 25 km wide and it's widest point. Pacific-Nevada Mining PTY is currently carrying out exploration over the Reekara EL 28/97 exploration license, which in conjunction with other licenses held by the company, covers most of the island apart from the far north and east coastal areas. Exploration is focused upon Proterozoic continental shelf associated rocks of the Mary Hall Zone, which have been intensely metamorphosed and deformed and intruded by granitic complexes. Principal commodities of interest are gold and copper.

## 2.0 Regional Geology

The geology of King Island comprises Proterozoic correlates of the Rocky Cape Group (West Coast Metasediments), Proterozoic granites (West Coast Granite), Late Proterozoic to Middle Cambrian sedimentary (East Coast Metasediments) and mafic volcanic sequences, Early Carboniferous granites and Quaternary sediments. The Quaternary sediments, which consist of alluvium and aeolian sand deposits, cover a large portion of the island. Outcrop is generally confined to the coast, where it occurs almost continuously. Inland, outcrop is sparse, occurring mostly in sharply incised creek beds of the east and south-east, road cuttings and quarries.

The oldest occurring rocks on King Island comprise a >1000m thick succession of poly-deformed, amphibolite facies metasedimentary rocks with minor mafic intrusions. These are the Mesoproterozoic West Coast Metasediments. The lithologies predominantly consist of quartzofeldspathic schist with minor quartzite, pelitic schist, and rare thin calcareous lenses (Seymour & Calver, 1995). The mafic intrusions are hornblende amphibolite sills and were emplaced prior to regional deformation.

Precambrian granitic intrusions are broadly synchronous with the amphibolite facies metamorphism and intense polyphase deformation (Penguin Orogeny). At least four periods of deformation are evident within the West Coast Metasediments: D1 producing tight to isoclinal folds and prograde metamorphism; D2 with associated open to tight minor folds which deformed the metasediments and granite intrusions; D3 producing moderately to gently inclined open folds; and D4 with upright folds. The majority of granite intrusions, which vary in composition from adamellite to granodiorite, are known to post-date (possibly late-syn D1) D1 folding, although minor granitic activity also post-dates D2 and D2 deformation (Seymour & Calver, 1995). Tholeiitic dolerite dyke swarms post-date D4 folding and may be associated with mafic extrusive rocks of probable Late Proterozoic age on the east coast of King Island (Cox, 1989).



East Coast Metasedimentary sequences of probable Neoproterozoic age, consisting of relatively unmetamorphosed sedimentary rocks, are separated from the West Coast Metasediments and intrusions by an inferred unconformity. The East Coast Metasediments form the majority of the eastern half of the island and comprise a sequence of siltstone, mudstone and shale with minor sandstone sequences. This sequence is conformably overlain along the southeast coast by a volcanosedimentary succession of siliceous sandstone, siltstone, diamictite, dolomite, tuff and mafic volcanics. An intracontinental rift setting is suggested for the volcanosedimentary sequence (Waldron et al, 1993), which is also a possible correlate of the Togari Group of the Smithton Synclinorium in northwestern Tasmania. Numerous augite syenite dykes cut the lower sedimentary succession and are suggested to be genetically related to the volcano-sedimentary sequence (Waldron et al, 1993). A significant deformational event of unknown age (probably Devonian) caused folding and faulting of the east coast rocks.

Granitoid rocks of Early Carboniferous age intruded the volcanosedimentary sequences of the east coast of King Island, including the Mt. Counsel (probable Sea Elephant equivalent) Adamellite, the Grassy Granodiorite, and the Bold Head Adamellite. Metasomatic replacement of carbonate horizons resulted in scheelite skarn mineralisation associated with the Grassy and Bold Head stocks.

### **3.0 Summary of Previous Exploration**

Previous exploration carried out on King Island is presented in Table 1.

Table 1 - Summary of Previous Exploration

Company/year/EL	Commodities & Models	Methods	Findings
<p>GEOPEKO LTD, 1969-1974 EL's 4/69 &amp; 5/69</p>		<p>Stream Sediment Sampling with analysis for Mo, W, Pb, Zn and Sn. Mineralogical and petrological examinations. DDH to 92.9m at INV 13. Regional bedrock sampling program using a gemco auger driller (38 holes, 276.75m). Closed spaced gemco auger drilling on INV 19 grid. Airborne radiometric and aeromagnetic survey.</p>	<p>Anomalous values of Mo and W (attributed to known mineralisation), with relatively high background of Pb (attributed to presence of the limey Mine Series rocks) in the Bold Head area. Two adjacent W and Sn anomalies next to main road in the Porky Creek area. Highly anomalous Pb and Zn occur over a 1 square mile drainage pattern to the north and northeast of the airfield. Concluded that a definite zone of interest exists in the Porky Creek area where high Pb and Zn results appear to be related to a granite intrusive of similar age to the Grassy granodiorite. Petrological studies indicated that all granitic rocks within the EL except at Porky reek and possibly Currie are of an older age than the Grassy granodiorite. Recrystallisation of the granites in the Reekara Road and Cape Wickham areas is thought to be associated with later regional faulting. No strong anomalous zones were found in the Reekara Road area. Auger drilling on the INV 19 grid defined anomalous Pb and Zn geochem within a zone of chlorite-muscovite schist (up to 3500ppm Pb and 3100ppm Zn). The highest values were attributed to sphalerite and galena mineralisation occurring within quartz veins which locally transect the schist. Intense circular anomalies (No's 3 &amp; 15) interpreted as magnetite rich olivine basalt plugs, similar to others found on KI.</p>
<p>GEOPEKO LTD EL 15/66</p>		<p>Regional Mapping Aeromagnetics and radiometrics were flown with follow-up ground magnetics carried out. A test infra-red scanning survey was flown over part of the area. Reconnaissance bedrock geochem sampling programs over magnetic and other targets including percussion drilling of two magnetic anomalies MA 11 (91.4m) and MA 10 (51.82m). Grid-based auger soil sampling.</p>	<p>Five areas of interest were defined:</p> <ol style="list-style-type: none"> <li>1. Bold Head granite contact (INV 4, 16 &amp; 17). This area was considered prospective due to the presence of spotted shales and tremolite hornfels within the eastern sediments. Soil sample results in the area contained anomalous W but generally poor base metal values, best values being 510ppm Cu, 85ppm Pb and 460ppm Zn. The tremolite hornfels rock consists almost entirely of radiating laths of tremolite, and is considered to represent a re-mobilised and metamorphosed siliceous carbonate rich horizon. The Grassy River Fault in the area is a wide zone of brecciated and re-cemented silica.</li> <li>2. N-S magnetic linears (MA 6, INV 9 &amp; 10). Auger drilling returned no geochemically anomalous results (best 120ppm Cu, 60ppm Pb and 170ppm Zn). The magnetic feature considered due to magnetite content variation of the sediments. May prove a good marker horizon within the stratigraphy.</li> <li>3. Circular magnetic feature (MA 11). Percussion drilling returned sediments with no anomalous geochemistry. Magnetic interpretation of a deep seated</li> </ol>

			<p>intrusive body. Peak auger geochem was 45ppm Cu and 130ppm Zn. Auger and percussion drilling to test MA 10 encountered hornfelsed pyritic siltstones and shales with "no economic potential," no assay results are sighted.</p> <p>4. Ireland's Farm (INV 15). Jacro augering of a lateritic ironstone returned peak analyses of 140ppm Cu, 60ppm Pb and 230ppm Zn.</p> <p>5. Barrier Creek. Discontinuous quartz veins containing PB, Zn, As, Ag and Au occur at the Barrier Creek workings. Mineralisation does not extend into the sedimentary host rocks and was considered uneconomic.</p>
New Mount Costigan Mines LTD, 1967- (68-497, 68-530)		<p>Regional geological survey. Stream sediment geochemical survey. Bouger Gravity survey. Prospect-scale geological, geochemical and geophysical surveying in areas of interest. Exploratory shallow diamond drilling. Induced Polarisation surveys in selected areas.</p>	<p>335 stream sediment samples showed very low background results: 5-10ppm Cu, 10-20ppm Pb and 15-30ppm Zn. The only significant anomaly occurred at Porky Creek (25ppm Cu, 90ppm Pb and 110ppm Zn). The regional bouger gravity survey showed lower anomalies in the north than in the south, indicating the north is probably dominantly underlain by granite. High NW-SE trending values in the Pegarah area coincide with gabbroic bodies. Soil sampling surveys carried out in conjunction with IP surveys returned no anomalous results. Excessive deep weathering (up to 300 feet) together with heavy clay was suspected to account for notably flat stream sediment and soil geochemistry. Strong IP anomalies occur along the gabbro-sediment contact over a distance of 5000 feet in the "Ireland's Farm" area. Two diamond drill holes at the Ireland's Farm prospect showed the IP anomalies to be due to pyrite in the sediments. Assay results returned peak values of 700ppm Cu, 200ppm Pb, 400ppm Zn and 80ppm Mo in pyritic (to 10%) carbonaceous shale. Of possible interest is feldspar porphyry intruded into the sediments, which was intersected while drilling.</p>
GEOPEKO LTD EL 18/72		<p>Geophysical review. Ground follow-up</p>	<p>Four spot highs identified and interpreted as olivine basalt plugs. Linear magnetic highs were confirmed to be due to magnetite increase within biotite mica schists and quartzites.</p>
GEOPEKO LTD EL 39/80	Mt. Carbine style vein swarm scheelite deposit.	<p>Scout and grid auger soil sampling. Ground magnetics and self potential</p>	<p>No analyses for Au. No significant self potential or ground magnetics anomalies found. Considered a northern extension of the Grassy River Fault and the possibility of a westward subsurface extension of the Devonian-Carboniferous Mt. Council Granite would satisfy the geological and structural conditions envisaged for the formation of a mineralised vein swarm deposit in the Reekara area. Known presence of mineralised quartz-tourmaline veins in Reekara area.</p>
GEOPEKO LTD EL 54/89	Gold related to the Grassy Fault. Silica sands.	<p>Water sampling for assay by the Huminex method. Limited soil sampling.</p>	<p>Results considered uneconomic. Elevated base metal soil results were considered spurious due to fertiliser contamination (1000 to 2360ppm Zn with 190 to 784ppm Pb and 259 to</p>

		Rock chip sampling.	451ppm Cu associated). Water sampling results were very low. Silica sands potential was reviewed, results considered uneconomic.
North Exploration 1993-94 (94-3557)	McArthur River style Pb- Zn	Review of previous exploration Geological compilation and mapping Rock chip sampling Gravity and Ground Magnetic survey's Geophysical interpretation by D. Leaman	Rock chip geochemistry returned no anomalous results, peak analyses being 185ppm Cu, 340ppm Zn, 44 Pb and 52ppm As. Cu, Co and to a lesser extent Ni, reflect lithology with more elevated values from meta basalts and meta gabbros. Geophysical interpretation found the gravity and magnetic fields to be dominated by the effects of the Devonian Grassy-Sea Elephant Granite. Cusps of the granite intruding Precambrian sediments were interpreted. These cusps may have exploration significance, presumably for Sn-W mineralisation. Gravity and magnetic data do not support the hypothesis of a substantial depositional sub-basin within the Precambrian sedimentary sequence. Regional gravity data indicates that the regional NNW trending Grassy River Fault is intersected by a major E-W fault just north of Pegarah.

## 4.0 Exploration Concepts

Exploration by Pacific-Nevada in the Reekara PL 28/97 area is aimed to focus upon the Mary Hall Zone as defined by Morritt (1997). The Mary Hall Zone comprises the Mesoproterozoic West Coast Metasediments which are a correlate of the Rocky Cape Group (and similar to the Arthur Metamorphic Complex (AMC)) of mainland Tasmania and the West Coast Granites. TMI imagery suggests that the zone has rotated counter-clockwise from the north-northeast orientation observed for the AMC to it's northerly orientation (Morritt, 1997). Proterozoic rocks such of those hosted in the Mary Hall Zone are known world-wide to host profitable orebodies, examples including, among many others, Homestake at Lead, South Dakota, USA (160 Mt @ 8g/t Au), Selwyn, Queensland, Australia (4.6Mt @ 5.2g/t Au & 2.05% Cu).

The King Island Focal Structure, which transects the central part of the Reekara PL 28/97 area through the center of the Mary Hall Zone and extends southeast almost as far as Hobart on mainland Tasmania, is interpreted as a primary crustal feature. The world-class orebodies of the Hellyer Zn-Pb-Ag-Au-Cu and Mt. Bischoff Sn deposits occur within the King Island Focal Structure. Other world-class orebodies in Tasmania have an obvious spatial relationship to further focal structures as identified by Morritt (1997). There is therefore, a clear potential for the occurrence of further world-class orebodies associated with the King Island FS within the Mary Hall Zone.

Targets include:

- Proterozoic iron-formation Au (Homestake Model)
- Proterozoic iron-formation Cu-Au pipes (Selwyn/Starra Model)
- Proterozoic sediment-hosted Cu (eg. Kuperschiefer/White Pine Model)

## 5.0 Known Mineralisation

Known mineralisation on King Island predominantly consist of tin and tungsten skarn and vein deposits. The best example of this occurs at the Dolphin and Bold Head W-Sn deposits (production of 60,000 tonnes WO<sub>3</sub> since 1937) which formed by metasomatic replacement of carbonaceous rocks during Early Carboniferous granitoid intrusion. Sn-W vein and alluvial workings occur over the island, particularly in the north east near Reekara. Numerous gold and base metal workings are also known, although no commercial production has been recorded from these. The base metal mineralisation is manifest in sulphide bands associated with quartz-vein lodes within both the West Coast and East Coast Metasediments. The best known example of this style of mineralisation occurs at Barrier Creek, where quartz-sulphide lodes have assayed 3.86% Pb, 3.74% Zn, 0.02% Cu, 10.88% As, 2ozs. 6dwt. 12grs Ag and 0ozs. 1dwt. 7grs Au. Alluvial gold is known from numerous drainages over the island.

There are, at present, no known occurrences of gold or base metals in the immediate Reekara PL area.

## 6.0 Exploration Activity by Pacific-Nevada

Exploration in the Reekara PL 28/97 area by Pacific-Nevada's Tasmanian field crew was carried out to investigate the regional stream sediment geochemistry as well as the regional geology and rock chip geochemistry within the Mary Hall Zone. Three days during early July were spent on the license, all of which were spent full time in the field. Sample sites could generally be accessed by vehicle using all-weather public and private roads.

### 6.1 STREAM SEDIMENT SAMPLING

Stream sediment sampling comprised bulk (BLEG analysis), 9 samples, - 80# sediments, 8 samples, and panned concentrate methods, 1 sample. Sampling problems arose in many drainages, especially in northern part of the area, where no water flow occurred and sediment consisted of thick organic-rich top soil and peat. In these cases, panned concentrate sampling was not possible. Overall, the quality of stream sediment samples was poor to moderate due to high level of weathering and contamination from soil and aeolian Quaternary sediments.

### 6.2 GEOLOGICAL MAPPING AND ROCK CHIP SAMPLING

A distinct lack of outcrop over inland areas caused problems in undertaking a comprehensive geological mapping and rock chip sampling program. Where outcrop occurred, mostly in sharply incised creek beds and banks, rock chip samples were taken. Outcrop is particularly sparse in sections of Reekara 28/97 EL where superficial deposits cover almost the entire area. However, quarries and rock float dug up during agricultural activities has allowed some rock chip sampling and mapping where otherwise impossible.

A total of 47 rock chip samples were collected.

### 6.3 RESULTS

Both stream sediment and rock chip assay results for the regional reconnaissance programs were of a low order. Stream sediment samples in particular were low order when compared to surveys carried out on mainland Tasmania. This is suspected to be due to the high extent of weathering of bedrock in the area, and to dilution by superficial deposits. Most previous explorers on King Island have made similar conclusions. No highly anomalous results were obtained from rock chip samples.

The best results from the exploration program include:

- 17.9 ppm Zn with 7.53 in bulk from the Yellow Rock River

## 7.0 Proposed Exploration

Exploration during the following year of tenure for EL 28/97 is expected to involve follow-up work and further assessment of prospective areas defined during 1998. This is likely to include focused stream sediment, rock chip and geological mapping, grid-based soil and geophysical surveys and possible drilling depending on results on priority of targets.

## 8.0 Expenditure

Geology	\$17,299
Geophysics - air	470
Administration	1,777
Total Expenditure	\$19,545

NB: Geochemical expenditure is included within the Geology category.

## 9.0 References

COX, S.F. 1989. Cape Wickham. In: *Geology and Mineral Resources of Tasmania*. Special Publication Geological Society of Australia 15:26-27.

MORRIT, R. F. C., 1997, North-West Tasmania – Australia. An Exploration Opportunity for Gold, Copper, and Diamonds: In-house company report for Pacific-Nevada Mining Pty. Ltd., 36p.

SEYMOUR, D.B and CALVER, C.R. , 1995. Explanatory notes for the Time-Space Diagram and Stratotectonic Elements Map of Tasmania: *Tasmanian Geological Survey Record 1995/01*.

WALDRON, H.M; BROWN, A.V and KEAYS, R.R. 1993. Geological setting and petrochemistry of Eocambrian-Cambrian volcano-sedimentary sequences from southeast King Island: *Report Mineral Resources Tasmania 1993/28*.

**PACIFIC NEVADA PTY LTD**  
PO BOX 7214 Cloisters Square  
Perth WA 6850

**APPENDIX 1**  
**EL28/97 REEKARA**

**SAMPLE LOCATION**  
**AND**  
**ANALYTICAL DATA TABLES**  
**12-12-97 TO 12-12-98**

Prepared by: Robert Reid, Senior Geologist  
Pacific Nevada Mining Pty. Ltd. November 1998

80#	East (AMG)	North (AMG)	Au	Cu	Pb	Zn	Ni	Fe	Mn	Co	As
6130728	237470	5598740	-1	6	-3	7	7	0.67	163	2	4
7530716	232320	5582900	2	4	7	17	8	1.91	572	3	15
7530723	234360	5589570	-1	14	21	56	12	5.42	540	18	21
7530724	234350	5589560	-1	16	4	21	43	0.75	225	9	4
7530725	233470	5599680	-1	14	11	72	19	3.32	617	30	12
7530726	240170	5594040	-1	5	5	8	6	1.47	52	3	5
7530727	236640	5598740	-1	6	4	12	7	1.09	313	8	1

## APPENDIX - EL28/97

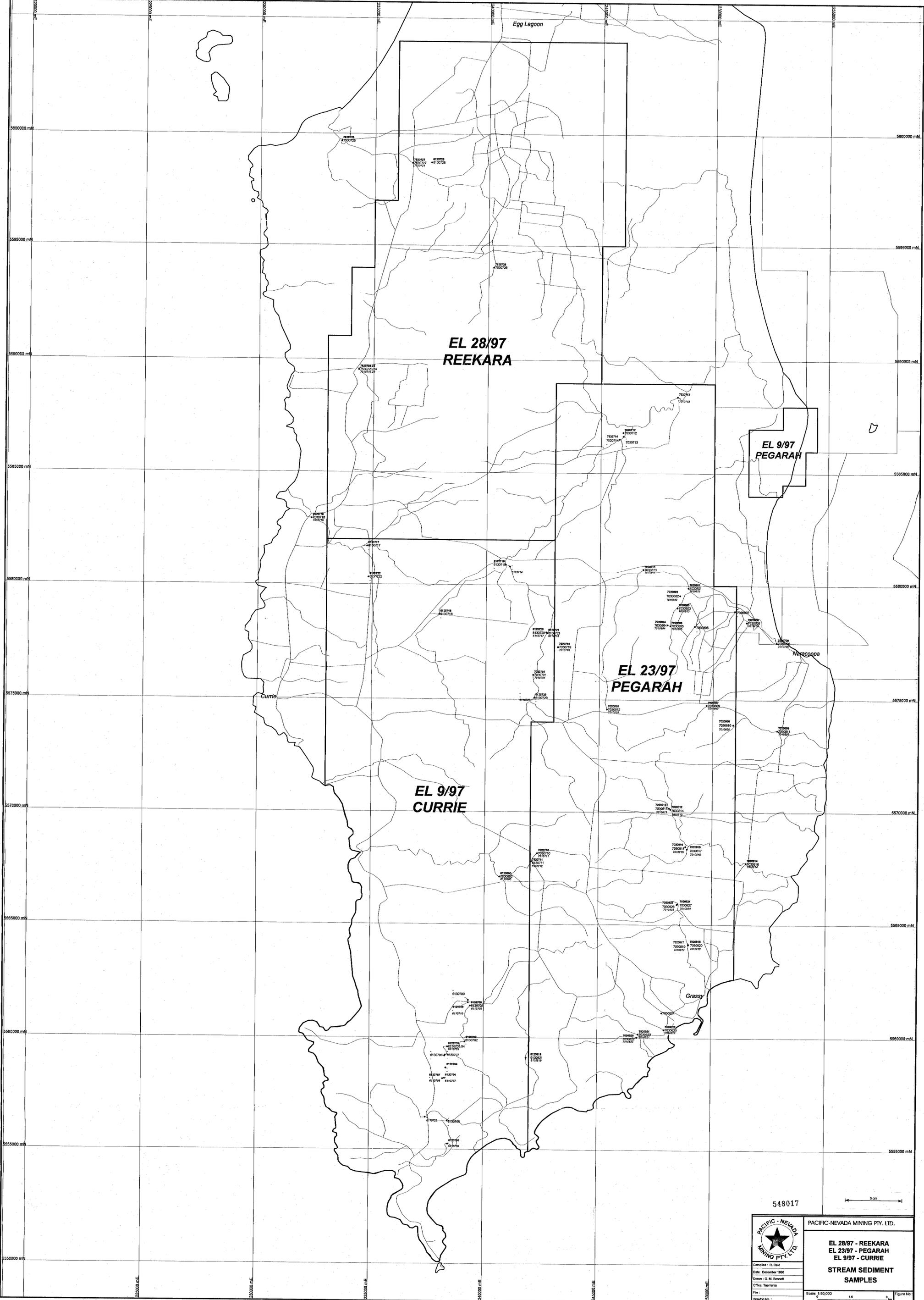
Bulk	East (AMG)	North (AMG)	Au	Cu	Pb	Zn
7520711	242060	5567800	2.3	0.64	-0.3	1.3
7520712	245980	5586820	10.1	4.53	1.1	11.7
7520714	245820	5586520	2.55	1.16	-0.3	2.2
7520716	232320	5582900	3.14	0.26	0.4	1.1
7520723	234360	5589570	0.39	1.01	-0.3	5.4
7520724	234350	5589560	1.78	0.79	0.4	2.3
7520725	233470	5599680	7.53	2.22	1.2	17.9
7520726	240170	5594040	2	0.68	-0.3	0.3
7520727	236640	5598740	1.83	0.18	-0.3	1.6

Pancon	East (AMG)	North (AMG)	Au
7510712	242060	5567800	-1
7510715	232320	5582900	-1
7510719	234360	5589570	-1
7510720	234350	5589560	-1
7510721	236640	5598700	-1

APPENDIX - EL28/97

Rock	East (AMG)	North (AMG)	Au	Cu	Pb	Zn	Ag	As	Ba	Co	Fe	Ca	K	Mg	Mn	Na	P	Ti	Zr	Ni
7540710	234880	5593100	1	150	-50	268	-5	108	273	62	67600	7800	14700	48600	436	10300	3100	5210	192	195
7540711	234882	5593100	-1	13	40	46	-5	29	344	-5	16100	2050	50000	3010	151	18600	600	1530	122	-10
7540712	234500	5593100	-1	-5	-50	-5	-5	-10	21	-5	6600	150	2500	200	63	1050	-30	117	6	-10
7540713	234620	5593200	-1	7	45	33	-5	16	365	-5	14400	2000	50600	2950	248	18700	550	1520	118	-10
7540714	241200	5593500	-1	113	45	54	-5	166	133	-5	408600	350	3400	690	285	700	2700	689	47	-10
7540715	241250	5593500	-1	-5	-50	12	-5	-10	54	-5	11500	200	900	1590	140	750	-30	215	-5	-10
7540716	241400	5593600	-1	-5	25	39	-5	28	292	-5	12800	500	5500	4180	279	2250	200	2520	117	-10
7540717	236640	5598700	-1	-5	25	27	-5	39	701	123	99200	172000	6300	3910	19800	2300	200	1500	36	16

548016



548017

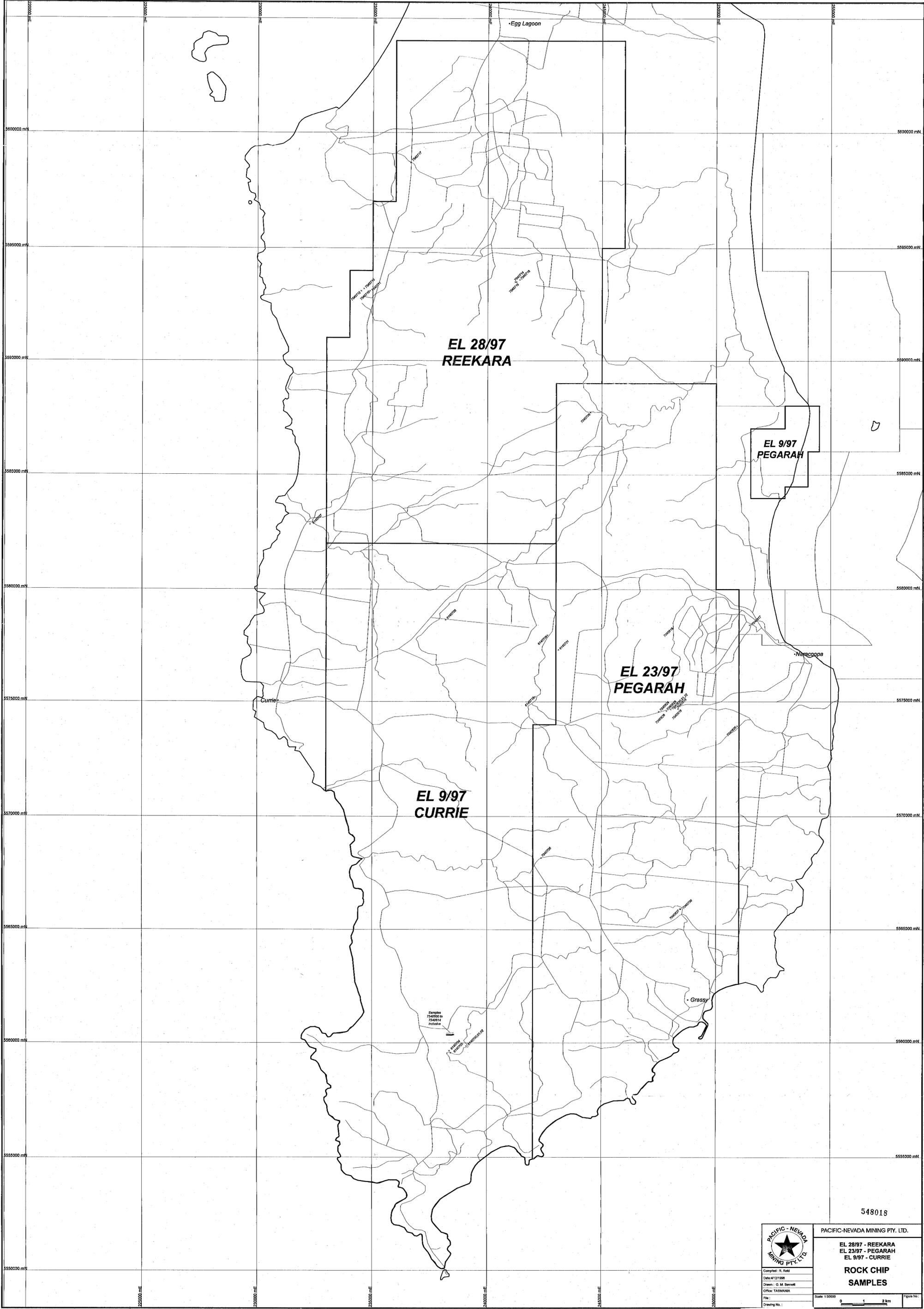


PACIFIC-NEVADA MINING PTY. LTD.

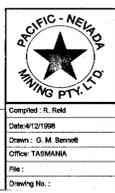
Compiled: R. Reid  
 Date: December 1998  
 Drawn: G. M. Bennett  
 Office: Tasmania  
 File:  
 Drawing No.:

**EL 28/97 - REEKARA  
 EL 23/97 - PEGARAH  
 EL 9/97 - CURRIE**  
**STREAM SEDIMENT  
 SAMPLES**

Scale: 1:50,000 Figure No.:



548018



PACIFIC-NEVADA MINING PTY. LTD.  
 EL 28/97 - REEKARA  
 EL 23/97 - PEGARAH  
 EL 9/97 - CURRIE  
**ROCK CHIP SAMPLES**

Compiled: R. Reid  
 Date: 6/12/1998  
 Drawn: G. M. Bennett  
 Office: TASMANKA  
 File:  
 Drawing No.:

Scale: 1:50000  
 0 1 2 km  
 Figure No.:

5 cm