



# IMX Resources

## **EL 17/2007 “Salmon River” Final Report for the Period 24th October 2007 to 23rd October 2013.**

Volume 1 of 1

**Holder/ Operator:** IMX Resources Ltd

**Level 2, 41 Colin St  
West Perth WA 6005**

**Compiled by:** T. Doyle

**Date:** 21 August 2013

**Distribution:** MRT- *(1 hardcopy, 1 digital)*  
IMX Resources Ltd - *(1 digital)*

## **ABSTRACT**

IMX Resources Ltd considered the Smithton area in NW Tasmania to have potential to host Ni-Cu sulphide mineralisation in sub-volcanic basic-ultrabasic intrusions. To pursue this target, several exploration licences were applied for in 2006 – 2011, one of which - EL17/2007 - is the subject of this report.

During the period of tenure, 19 rock chip, 24 conventional soil, 127 MMI™ soil and five stream sediment samples were collected, three diamond and four RC holes were drilled, one petrographic sample was described and airborne EM data were acquired.

Due to contracted budgets and despite some encouraging geochemistry, a decision was made to rationalise the company's asset portfolio and as such, all NW Tasmanian licences, including EL17/2007, were relinquished in favour of more advanced projects elsewhere.

Total expenditure for the reporting period was **\$357,593**.

## **KEYWORDS**

Tasmania North West, Burnie 250,000 map sheet, Smithton, geochemistry, Ni-Cu sulphide mineralisation, MMI™ sampling, HMC sampling, RC drilling.

# TABLE OF CONTENTS

## SUMMARY

## KEY WORDS

DIGITAL FILES (ON REPORT CD).....	i
LIST OF TABLES.....	i
LIST OF FIGURES.....	i
LIST OF APPENDICES.....	i
1.0 INTRODUCTION.....	1
1.1 Exploration Rationale.....	1
1.2 Geological Setting.....	1
2.0 TENURE.....	2
3.0 REVIEW OF PREVIOUS WORK.....	4
4.0 IMX EXPLORATION.....	4
6.0 DISCUSSION OF RESULTS.....	7
7.0 CONCLUSIONS.....	7
8.0 ENVIRONMENT.....	7
9.0 EXPENDITURE.....	8
10.0 REFERENCES.....	9

## DIGITAL FILES (ON REPORT CD)

EL172007\_01\_FinalReport.pdf  
EL172007\_02\_Appendix1\_SSamp.txt  
EL172007\_03\_Appendix2\_DHColl.txt  
EL172007\_04\_Appendix2\_DHAssay.txt  
EL172007\_05\_Appendix2\_DHSurvey.txt  
EL172007\_06\_Appendix2\_DHLith.txt  
EL172007\_07\_Appendix3\_Petrology.pdf

## LIST OF TABLES

Table 1 Licence Details  
Table 2 Expenditure Life to Date

## LIST OF FIGURES

Figure 1 Tenement Location  
Figure 2 Exploration Activity Summary Map

## LIST OF APPENDICES

Appendix 1: Surface sampling  
Appendix 2: Drilling data  
Appendix 3: Petrology Report

## 1.0 INTRODUCTION

The following report details work conducted at IMX Resources Ltd's ('IMX') EL17/2007 – 'Salmon River' during the period 24th October 2007 to 23rd October 2013. The tenement is located 25km west-south west of Smithton, NW Tasmania (Figure 1).

### 1.1 Exploration Rationale

EL17/2007 is considered to have potential for Ni-Cu sulphide mineralisation in subvolcanic basic-ultrabasic intrusions.

### 1.2 Geological Setting

The Rocky Cape region of northwest Tasmania consists of thick weakly metamorphosed deformed Neoproterozoic sedimentary and volcanic successions (Calver 1998). The oldest exposed succession consists of orthoquartzite, siltstone and minor carbonate (the Rocky Cape Group) that underlies the Togari Group. The Rocky Cape Group is younger than 1200Ma. An angular unconformity separates the Rocky Cape Group from the Togari Group which occupies the Smithton Synclinorium in far northwest Tasmania. The Togari Group (Everard et al. 2007) consists of siliciclastic rocks (Forest Conglomerate), a carbonate -chert-shale unit (Black River Dolomite) dated at 750-650 Ma, rift tholeiite and associated volcanoclastic units (Kanunnah Subgroup) and dolostone (Smithton Dolomite) dated at 580-545 Ma. The Black River Dolomite contains stromatolites and probably had evaporitic affinities. The Smithton Dolomite is overlain by Middle to Late Cambrian sandstone and shale, the Scopus Formation. On older maps e.g. the 1: 50 000 SMITHTON sheet all carbonates and dolostones are shown as Smithton Dolomite.

Dolerite dykes dated at 600-588 Ma and differentiated basic- ultrabasic intrusions related to the tholeiitic sequence were emplaced into the sequence below the Kununnah Group. The Proterozoic- Paleozoic sequence is locally overlain by Tertiary basalts occurring mainly as hill cappings. Basalt compositions range from basanite through alkali olivine basalts to tholeiite.

Both the Rocky Cape Group and the Togaru Group were deformed during the Cambrian and the Devonian.

The presence of subvolcanic basic-ultrabasic intrusions in a sequence of sulphide bearing sedimentary rocks, imply that the region has potential for Ni- Cu sulphide deposits. Possible sulphur sources for Ni sulphide deposits are present in the Cowrie Siltstone (Rocky Cape Group) and in shales of the Black River Dolomite.

## 2.0 TENURE

Exploration Licence 17/2007, in the Land District of Wellington & Russell vicinity of Salmon River, was granted to Goldstream Mining NL (now IMX) for a term of 5 years from the 24<sup>th</sup> October 2007. A partial relinquishment of 37.46 km<sup>2</sup> was made during 2009 reducing the licence to 127.54 km<sup>2</sup>. In July 2011, an adjustment was made to the northern boundary to close a gap between this licence and a new licence application made using the MGA94 datum. This boundary shift increased the licence area to 128.6km<sup>2</sup>. Table 1 summarises the licence's history.

The licence is subject to a Joint Venture with Mr F. Barrett (4% ownership). Due to rationalisation of property assets and refocusing of budgets, IMX decided not to continue tenure in the Smithton Project. Table 1 summarises the tenement details and Figure 1 shows its location.

**Table 1: Licence Details**

Licence	Period		Year	Area
	From	To		
EL17/2007	24th October 2007	23rd October 2008	1	165 km <sup>2</sup>
	24th October 2008	23rd October 2009	2	165 km <sup>2</sup>
	24th October 2009	23rd October 2010	3	127.54 km <sup>2</sup>
	24th October 2010	23rd October 2011	4	128.6 km <sup>2</sup>
	24th October 2011	23rd October 2012	5	128.6 km <sup>2</sup>
	24th October 2012	23rd October 2013	6	128.6 km <sup>2</sup>

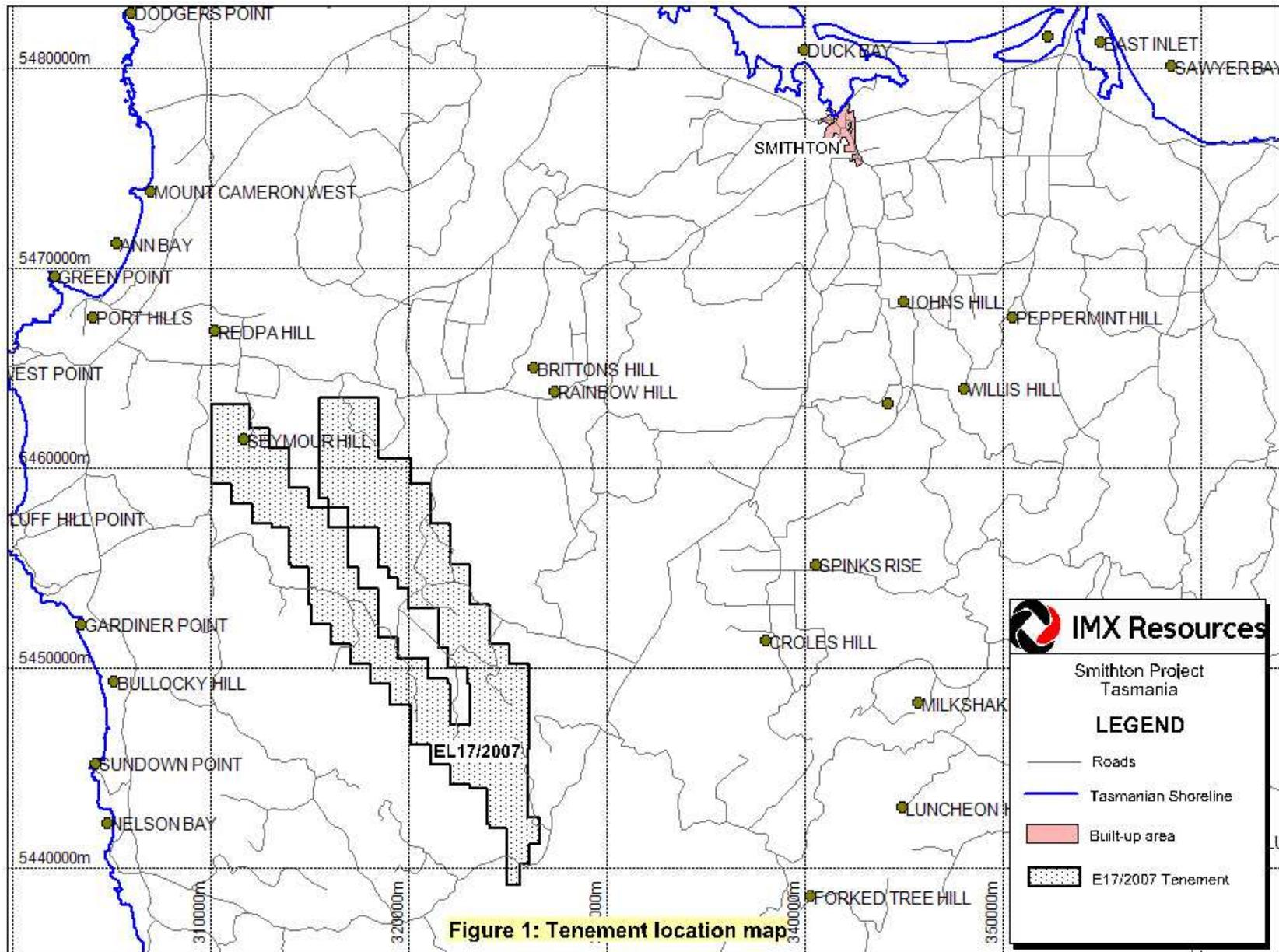


Figure 1: Tenement location map

### 3.0 REVIEW OF PREVIOUS WORK

Very limited exploration has been carried out within EL17/2007. ANZECCO (Kinnane 1972) carried out stream sediment sampling and located sites with very high Sn (max 1.08%) and Cr (max. 33%) in heavy mineral concentrates. Subsequent work revealed that the high Cr and Sn contents originated in widespread alluvial terraces related to Arthur River, but the ultimate origin of the Sn and Cr was not well defined.

Similar terraces are also widespread further north in the Montagu Swamp Area, and all the terraces have been investigated for their Cr contents e.g. BHP (1998). While the Cr grades may be high in small samples the tonnages are orders of magnitude too low for a Cr deposit.

The chromites form two populations with one possibly originating in the local volcanic and subvolcanic intrusions, whereas the main population are more likely to originate in rocks similar to the Cambrian basic-ultrabasic complexes further south. The origin of the alluvial chromites is also discussed by Everard et al. (2007).

Pacific Nevada carried out stream sediment sampling, rock chip sampling and a combined airborne EM a magnetic survey exploring for sediment hosted base metal deposits in the southern part of E17/2007, but the project was terminated after one season as the results were not promising (Reid 1998).

Imdex has explored for silica flour over silicified carbonates, and a silica flour mine is being developed near the Arthur River (MacCulloch, 2005).

A detailed aeromagnetic/radiometric survey with 200m line spacing flown by AGSO/MRT in 1996 has been valuable in locating intrusions due to the generally poor outcrop.

### 4.0 IMX EXPLORATION

2007-2008 exploration included the completion of an airborne EM survey by Geotech Airborne Pty Ltd (Barrett et al, 2008) and collection of seven rock chip samples.

Two RC holes drilled in 2009 targeting EM anomalies had to be abandoned without reaching target as the RC rig could not handle large amounts of water and were scheduled to be redrilled as diamond holes in 2010 (Chai, 2009). In addition, 2 rock chip samples were collected during the 2008-09 season.

31 MMI<sup>TM</sup><sup>1</sup>, 24 soil and 7 rock chip samples were collected in 2010. The MMI<sup>TM</sup> produced surprising results apparently providing better geochemical contrast than traditional soil sampling methods hitherto used. Three diamond drill holes were

---

<sup>1</sup> MMI<sup>TM</sup> - Mobile Metal Ion analysis is a low level detection geochemical process that analyses metals in soils and weathered materials using extremely weak solutions of organic and inorganic compounds rather than the conventional aggressive acid digest solutions or fusions. MMI<sup>TM</sup> extractants, containing strong ligands, are used to detach and hold in solution metal ions which are loosely bound to soil particles by weak atomic forces. The metal ions held in solution are therefore the chemically active or 'mobile' component. These mobile forms occur in very low concentrations that are readily measurable by modern ICP-MS analysis with considerable precision. Source- <http://www.geochem.sgs.com/mmi-process.htm>

completed for 174m. SRDH03 returned deeply weathered, highly alkaline rocks (Chai and Barrett, 2010).

In 2010-11, 35 MMI™ samples were collected to infill better results returned in 2010 (Doyle and Barrett, 2011). All samples contained high Cr and Ti, and some samples showed anomalous Zr, Nb, Li, Pd, Sn and U. Heavy mineral concentrates were obtained from two sites, one of which contained chromites with high Cr and/or high ZnO. Three rock chip samples were collected from mafic outcrops returning peaks of 1039ppm Cr, 118ppm Cu, 172ppm Nb, 17ppb Pd, 6ppb Pt, 72ppm Ni, 145ppm Zn, 11,527ppm Ti, 4.13ppm U and 440ppm V. Petrology of a sample from drillhole SRDH03 (drilled in 2010) showed the rocks were highly altered alkaline basic / ultrabasic and identified Cu-Sn alloys and fine-grained titanium oxides.

In 2011-12, a further 61 MMI™ samples were collected to test and rank stratigraphy-controlled magnetic highs. Coverage was very uneven and mainly restricted to plantations and cleared areas close to tracks. Cr and Ti were ubiquitously present in anomalous concentrations while elevated Pd, Cu, Sn, Zr and REEs were present in a number of locations. The presence of Pd without matching Pt in the MMI™ samples and the widespread anomalous Cu suggests that sulphides are present in unaltered rocks. The Cu-Ni-PGE sulphide potential is also indicated by elevated chromite compositions.

A single heavy mineral concentrate was also collected from a stream in 2012.

Magnetic data were remodelled to determine an ideal drilling orientation of targets generated from surface sampling (Mutton, 2012). Four RC drill holes were planned to test the targets in 2012, however only two were drilled due to poor drilling conditions. A description of analysis and sampling is given by Doyle and Barrett, 2012.

The location of all IMX samples and drilling is shown in Figure 2, surface assays are presented in Appendix 1 and drilling data in Appendix 2.

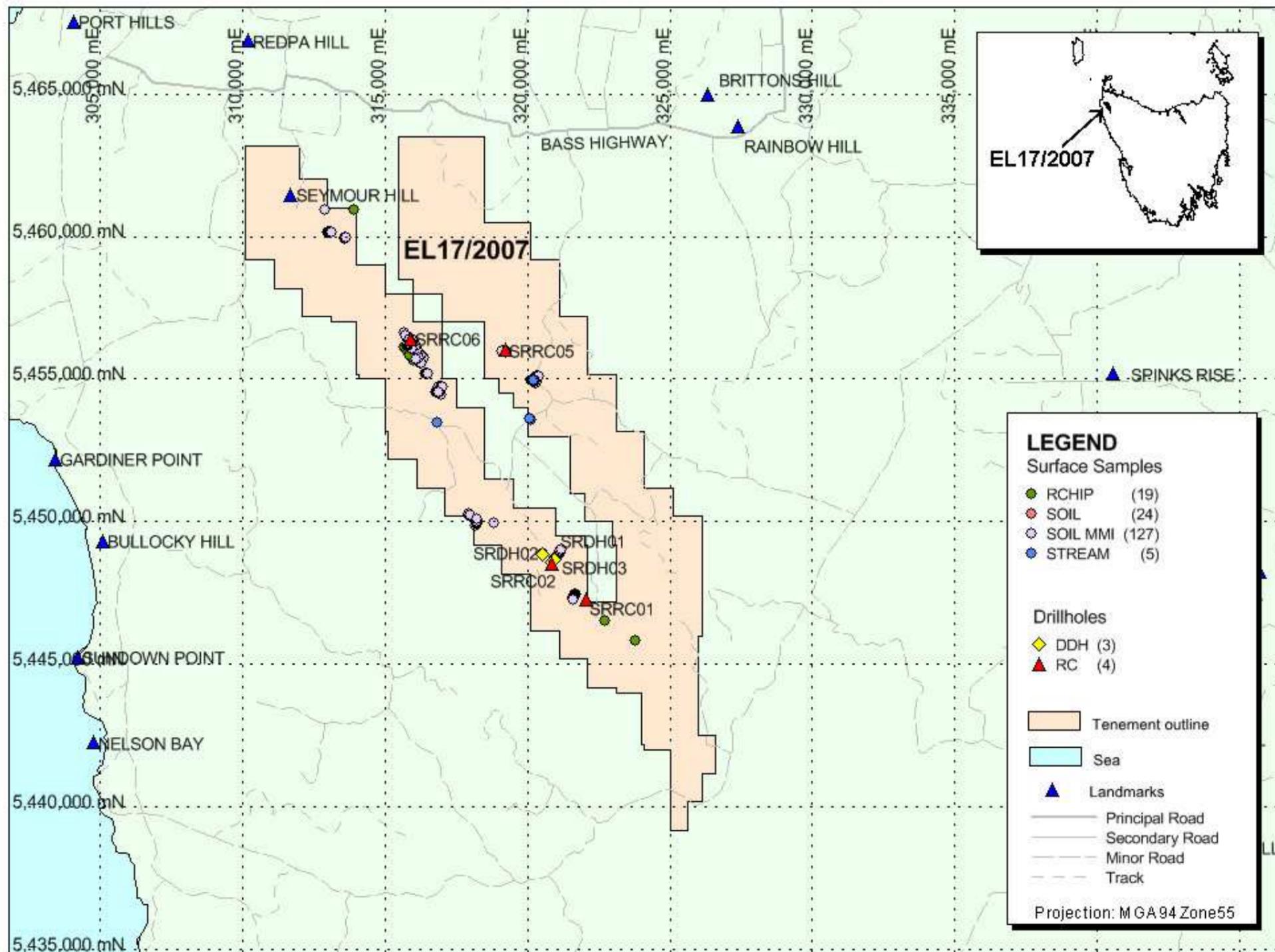


Figure 2: Exploration activity summary map

## **6.0 DISCUSSION OF RESULTS**

Petrographic description of a selection of 2012 drill chip samples confirm the rock types are typical of unmineralised Spinks Creek Volcanics and volcanosedimentary equivalents in the Keppel Creek Formation of the Smithton Trough (Crawford, 2012 – report attached as Appendix 3).

## **7.0 CONCLUSIONS**

Hampered by access difficulties, the tenement was not satisfactorily tested during the tenure period; however unfavourable drilling and petrographic results have downgraded the prospectivity of the licence. Due to company budget re-prioritisation, IMX has decided to allow the licence to lapse.

## **8.0 ENVIRONMENT**

Grass divots were replaced immediately following MMI™ sampling. The RC holes were drilled on existing Forestry tracks so no trees were removed. The holes were capped below surface and backfilled at the completion of the drilling. Due to fires in early 2013, rehabilitation of the drill cuttings and sumps was delayed until February. Drill holes and sample spoils have been rehabilitated according to Departmental guidelines.

## 9.0 EXPENDITURE

Expenditure for Salmon River EL17/2007 for the reporting period is summarised in Table 2. This summary includes all expenses accrued up to 30<sup>th</sup> August 2013.

Total expenditure for the reporting period was **\$357,593**.

**Table 2:** Expenditure Life to Date

<b>Activity</b>	<b>Amount (AUD)</b>
Assaying	\$14,164
Soil Sampling	\$13,347
Drilling - RC	\$37,939
Drilling - Diamond	\$39,133
Geological Salaries (recharge - staff S & W)	\$20,048
Field Supplies	\$5,315
Geological Consultants	\$52,973
Geophysical Consultants	\$9,245
Geophysical Data	\$37,321
Geochemical Data	\$14,691
Data Entry / Drafting	\$8,935
Road , Site Works, Track Cutting	\$7,693
Petrology / Mineralogy	\$1,175
Tenement Acquisition Costs	\$821
Tenement Administration	\$6,772
Tenement Rentals	\$29,982
Tenement - Rehab	\$3,244
Vehicles - Fuel	\$974
Vehicles - Hire	\$2,431
Equipment Hire	\$784
Computer Software	\$8,357
Consulting Fees	\$2,491
Courier	\$350
Freight and Cartage	\$50
Communication	\$631
Travel & Accomodation - International	\$179
Travel & Accommodation - Domestic	\$6,999
Food & Messing	\$881
Training	\$50
<b>Overheads (10%)</b>	\$30,620
<b>TOTAL EXPENDITURE LIFE TO DATE</b>	<b>\$357,593</b>

## 10.0 REFERENCES

**Barrett F, Manzi B and Chai A, 2008.** EL 17/2007 “Salmon River” Annual Report for the Period 24th October 2007 to 23rd October 2008. *IMX Resources Pty Ltd unpublished report.*

**Calver CR, 1998.** Isotope stratigraphy of the Neoproterozoic Togari Group, Tasmania. *Aust. Jour. Earth Sci.* 45, 865-874.

**Chai A, 2009.** EL 17/2007 “Salmon River” Annual Report for the Period 24th October 2008 to 23rd October 2009. *IMX Resources Pty Ltd unpublished report.*

**Chai A and Barrett, 2010.** EL 17/2007 “Salmon River” Annual Report for the Period 24th October 2009 to 23rd October 2010. *IMX Resources Pty Ltd unpublished report.*

Crawford A, 2012. Petrography Report 8 samples from the Smithton Region, NW Tasmania. *IMX Resources Pty Ltd internal report.*

**Doyle T and Barrett F, 2011.** EL 17/2007 “Salmon River” Annual Report for the Period 24th October 2010 to 23rd October 2011. *IMX Resources Pty Ltd unpublished report.*

**Doyle T and Barrett F, 2012.** EL 17/2007 “Salmon River” Annual Report for the Period 24th October 2011 to 23rd October 2012. *IMX Resources Pty Ltd unpublished report.*

**Everard JL, Seymour DB, Reed AR, McClenaghan MP, Green DC, Calver CR and Brown AV, 2007.** Regional geology of the southern Smithton Synclinorium. Explanatory Notes for Roger, Sumac and Dempster 1: 25 000 scale geological map sheets, far northwestern Tasmania.

**Mutton P, 2012.** Smithton Magnetic Modelling. *Internal memorandum.*

**Reid R, 1998.** EL14/97 Lovells Creek Report of exploration 05-12-97 to 05-12-98. *Pacific Nevada open file report 98-4234.*

# **APPENDIX 1**

## **Surface Sampling**

# **APPENDIX 2**

## **Drilling Data**

## **APPENDIX 3**

### **Crawford Petrology Report**