

EL28/1988
Mount Zeehan

Annual Report 2021-22

J Denholm



EXECUTIVE SUMMARY

In the tenement year, a 4-line IP survey, a helicopter assisted downhole electromagnetic survey of TH007, assay of TH007 drillcore, and geophysical data interpretation including the remodeling of a historic VTEM survey were completed, during the acquisition of Avebury Nickel Mine and associated exploration leases by Mallee Resources. The TH007 assays show nickel values in line with background of ultramafic rocks, and no significant nickel mineralization was intersected. The remodeled VTEM survey has identified a total of 46 anomalies, 18 of which have been ranked as priority 1 targets. The DHEM survey for TH007 showed a broad response typical of a large source beyond the end of hole interpreted as a large but only moderate conductor. The IP survey anomalies are in good agreement with those noted in the DHEM and VTEM surveys.

The expenditure for the year was \$149,331.

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FILE LISTING

Exploration Work Type	Filename	File format
Report	EL281988_202212_01_Report.pdf	<i>pdf</i>
Drilling	EL281988_202212_02_DG_1.xls	xls
	EL281988_202212_03_DS_1.xls	xls
	EL281988_202212_04_QAQC_1.xls	xls
	EL281988_202212_06_SL_1.xls	xls
	EL281988_202212_07_DL_1.xls	xls
	EL281988_202212_08_Lithologycodes.xls	xls
File Verification Listing (<i>this file</i>)	EL281988_202212_05_FileListing.xls	xls

***Note.** TH007 collar location, survey and log files may already have been submitted to MRT in the previous tenement year and under the previous company, however for completeness they are submitted again with the new assay file.

INTRODUCTION

EL28/1988 is a Category 1 Exploration License, held by Allegiance Mining Pty Ltd, which since the previous reporting period has been acquired by Mallee Resources, owner of the Avebury Nickel Mine. The lease covers 25 square kilometers and is located approximately 9 kilometers southwest of Zeehan. The main section of the lease is southwest of Avebury, but a narrow strip also exists to the north of the Avebury mine leases. Access to the license area is via tracks from Trial Harbor or Trial Harbor Road, however much of the lease is remote and helicopter assistance is required for exploration work. The area is listed predominantly as Future Potential Production Forest (Crown), with a belt of Regional Reserve along the coastline. The area is prospective for Avebury style nickel mineralization, which is the focus of the company, however, also contains known Sn deposits.

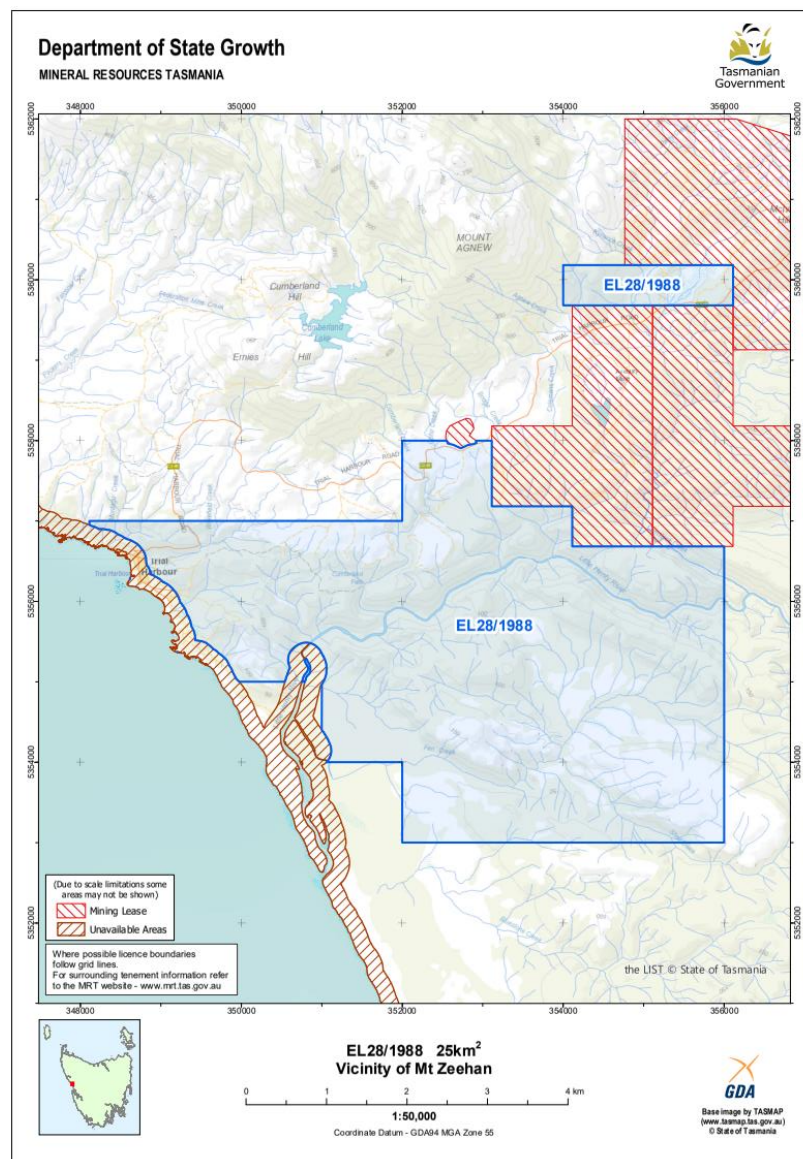


Figure 1. Locality Map of EL28/1988 with the Avebury Mine Lease to the northeast.

REVIEW OF PREVIOUS WORK

Complete examinations and summaries of historic work carried out on the tenement area have been outlined in previous Company annual reports.

EXPLORATION COMPLETED DURING THE REPORTING PERIOD

In the tenement year, TH007 was assayed, a DHEM survey was completed, a 4-line IP survey was completed, and a review of the 2011 VTEM survey over the area including re-modelling and re-interpretation was completed. Data acquisition was completed by Fender Geophysics and data interpretation and modelling was completed by Mitre Geophysics. Review of the targets by Avebury is only preliminary at this stage as the data interpretation was provided only recently. The below information (aside from discussion on TH007 assays) is summarized from the Mitre Geophysics reports included in the Appendices.

TH007 Assays

38 samples from TH007 were submitted to ALS for 34 element multielement analysis, between 95 and 128m. The highest nickel assay was 2130 ppm between 112 and 113m, however most other samples had a similar value reflective of background serpentinite. Fe and S are well correlated, and Ni is not correlated with either, indicating pyrite or pyrrhotite as the primary sulfides.

TH007 DHEM Survey

Fender Geophysics conducted a DHEM survey of TH007 in March 2022. The survey shows a broad response typical of a large source beyond the end of the hole. This response has been modelled using two south–west dipping plates. While both these models are large, they are only moderate conductors, and neither massive sulfide, graphitic shale or possibly coastal seawater incursion can be ruled out. They do, however, appear to lie within the Cambrian serpentinite. The VTEM appears to be responding to the same zone.

The TH007 DHEM results are in good agreement with results from the 2011 VTEM survey. The results also correlate well with the resistivity results from the 2022 IP in the same area.

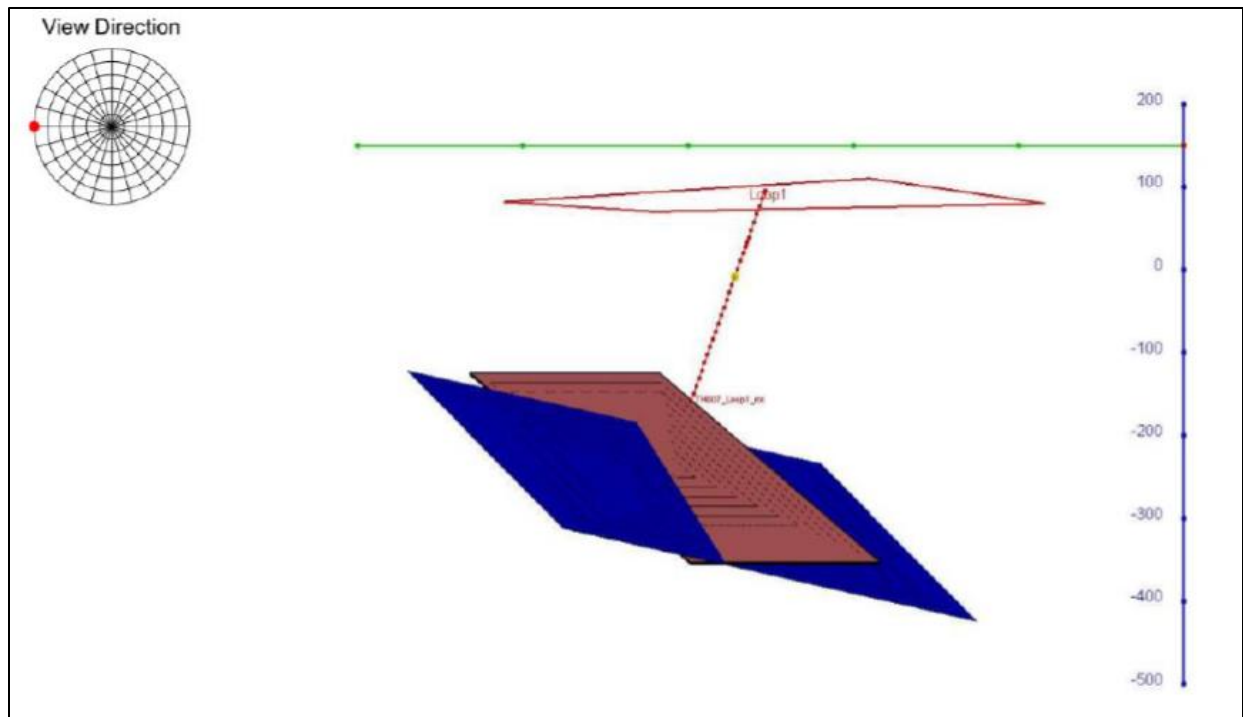


Figure 2. Plates generated from the TH007 DHEM survey data.

The survey results can be found in Appendix 3.

IP Survey

Four 1.2 km lines of pole-dipole IP were also acquired in March 2022. The results show three clear low resistivity zones that spatially match the location and geometry of the VTEM and DHEM models.

The deepest anomaly is in the same area as TH007, but the hole has not intersected it. The IP agrees with the DHEM from TH007 since both show a large, moderately conductive zone about 50-100m beyond the end of the TH007. Notably, this zone does not have an IP response which suggests either that it is not due to sulfides/graphite (sea water?) or that it could be massive sulfide but without a substantial halo of disseminated sulfides.

The second anomaly is on the northern end of IP line 1000E and 1200E where these lines cross the A40 and A41 VTEM anomalies. The IP shows strong low resistivity/chargeability responses near the VTEM conductors.

The eastern most IP line, line 1600E, traverses VTEM anomaly A34. The model for this anomaly coincides with very narrow, vertical, low resistivity zone in the IP, however the chargeability results do not correlate as well.

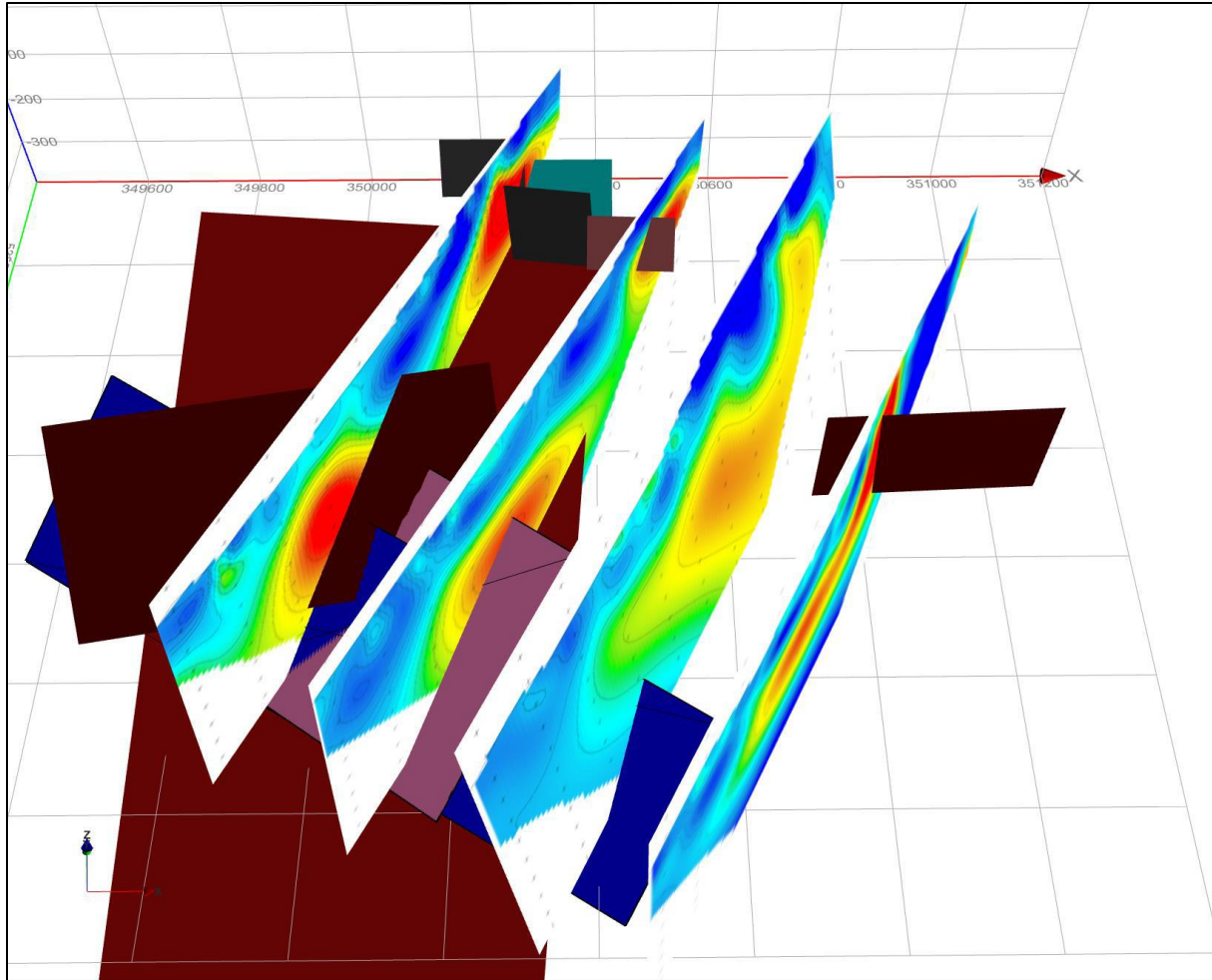


Figure 3. VTEM plate models and DC resistivity sections.

MMG VTEM Review

Through the work on the IP and DHEM, Mitre Geophysics was prompted to reassess the VTEM survey conducted by MMG in 2011 (Callaghan, 2011; McGilvray and Denwer, 2011). Upon investigation, it appeared that the data was only assessed to a superficial level, and only 5 of around 30 anomalies were addressed, with only 1 that was successfully tested. The anomalies tested and results are as follows:

VTEM anomaly 2, near the Denali Prospect, was tested with drillhole TRL001 to 205.9m and intersected significant pyrite and magnetite, but overall low Ni assays.

VTEM anomaly 3 was tested with A165 and likely intersected the edge of one of the conductors. The hole intersected ultramafics but also abundant pyrrhotite associated with actinolite altered Crimson Creek Formation from 186m. The pyrrhotite likely caused the anomaly.

VTEM anomalies 4 and 5 are located 2km west of Avebury and were tested with A154 however pyrrhotitic black shale was intersected and likely caused the anomaly.

VTEM anomaly 6, located north of Avebury, was likely the only successfully tested anomaly, drilled with holes P010 and P011. These holes intersected massive gabbro followed by massive magnetite with pyrrhotite-pyrite-serpentine and minor chalcopyrite. These zones contained very low Cr and Ni.

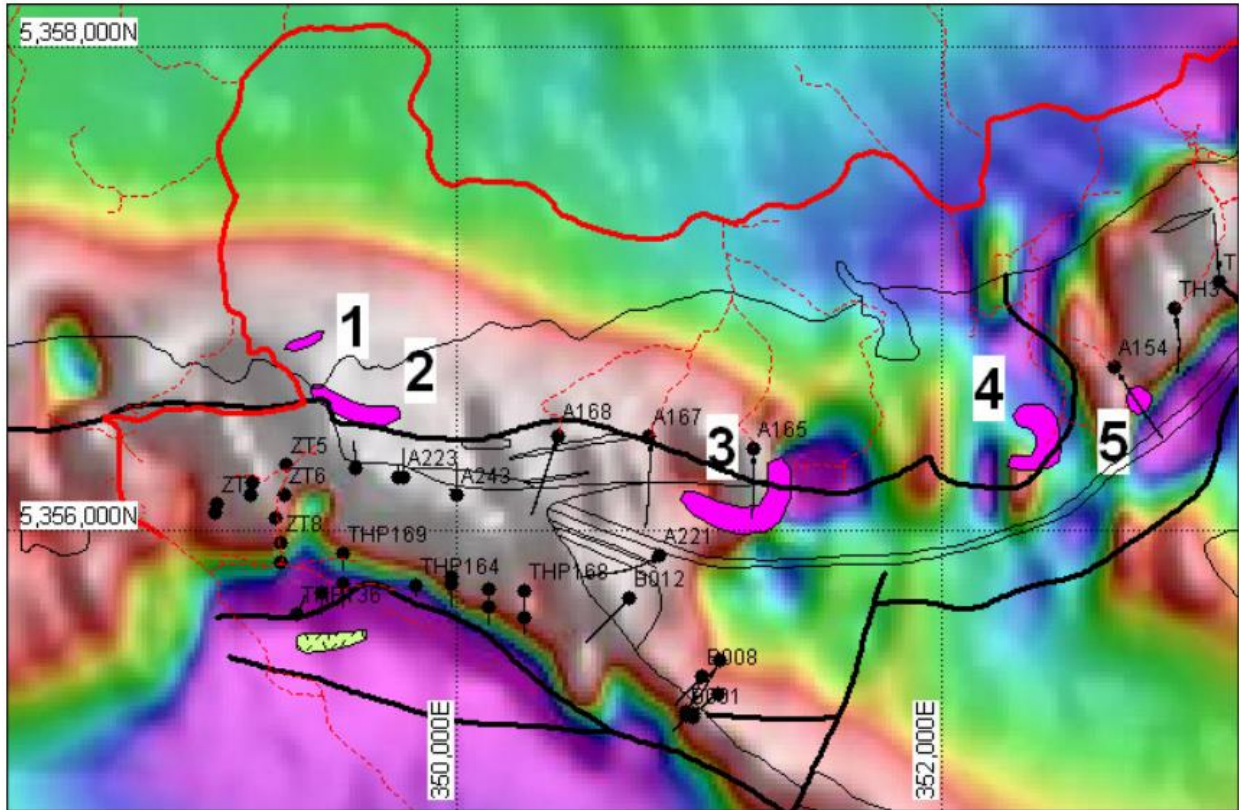


Figure 4. The 5 VTEM anomalies tested by MMG. Figure from Callaghan, 2011.

The data was therefore reassessed, and all conductors were modelled as 3D plates, resulting in 46 anomalies, 18 of which were ranked as well to moderately well constrained targets. Some of the anomalies required up to 6 plates for modelling. Several anomalies related to cultural features (e.g., Avebury Mine infrastructure) or seawater were identified, and plates were provided for these regardless. 10 VTEM anomalies have been highlighted by Avebury for follow up, focusing on an association with a magnetic high or proximity to known serpentinite from mapping or drilling.

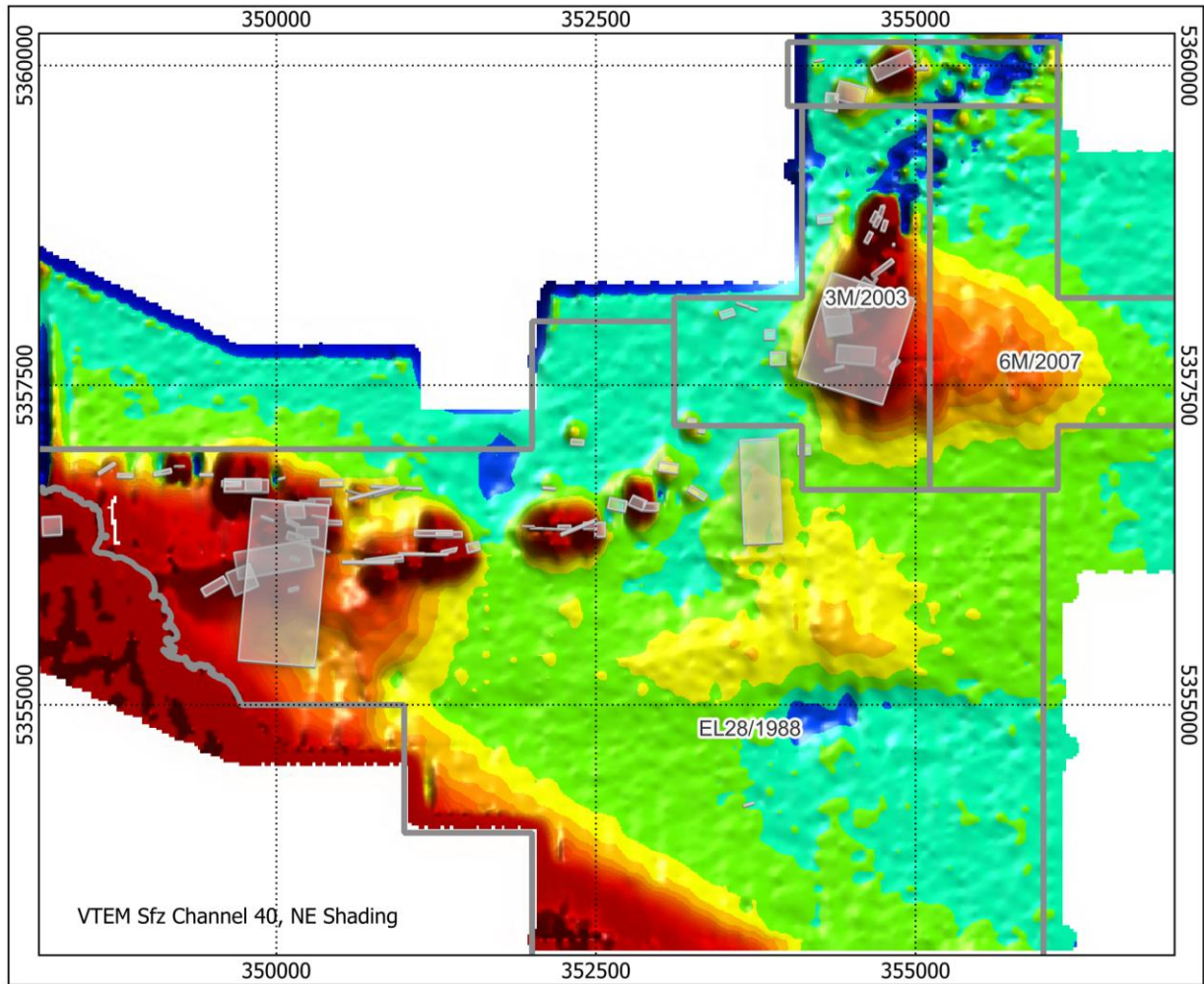


Figure 5. Modelled VTEM plates over gridded VTEM results - Sfz Channel 40 with NE shading.

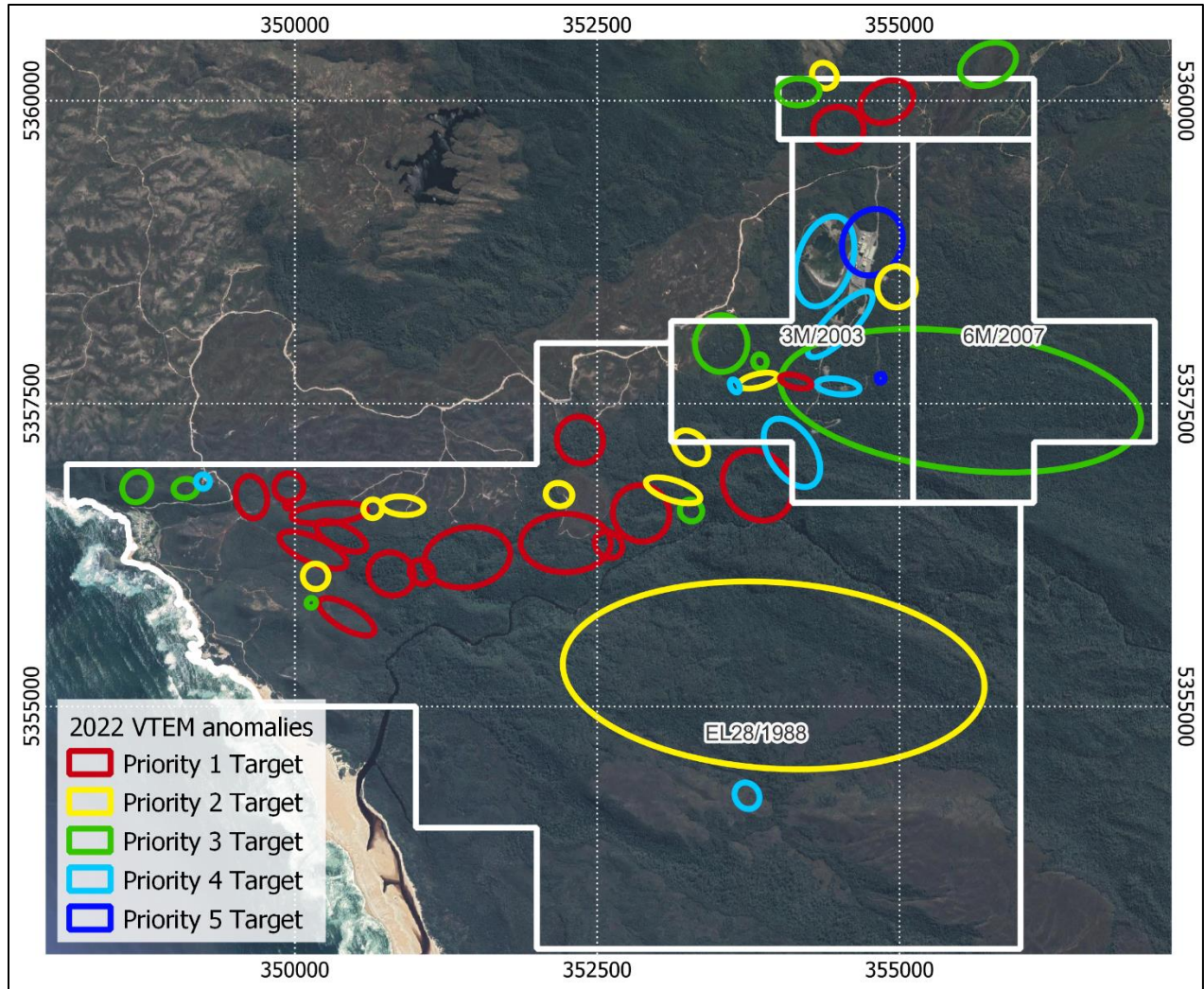


Figure 6. Identified VTEM anomalies ranked by Mitre Geophysics for confidence and prospectivity, overlain on Google Maps satellite image.

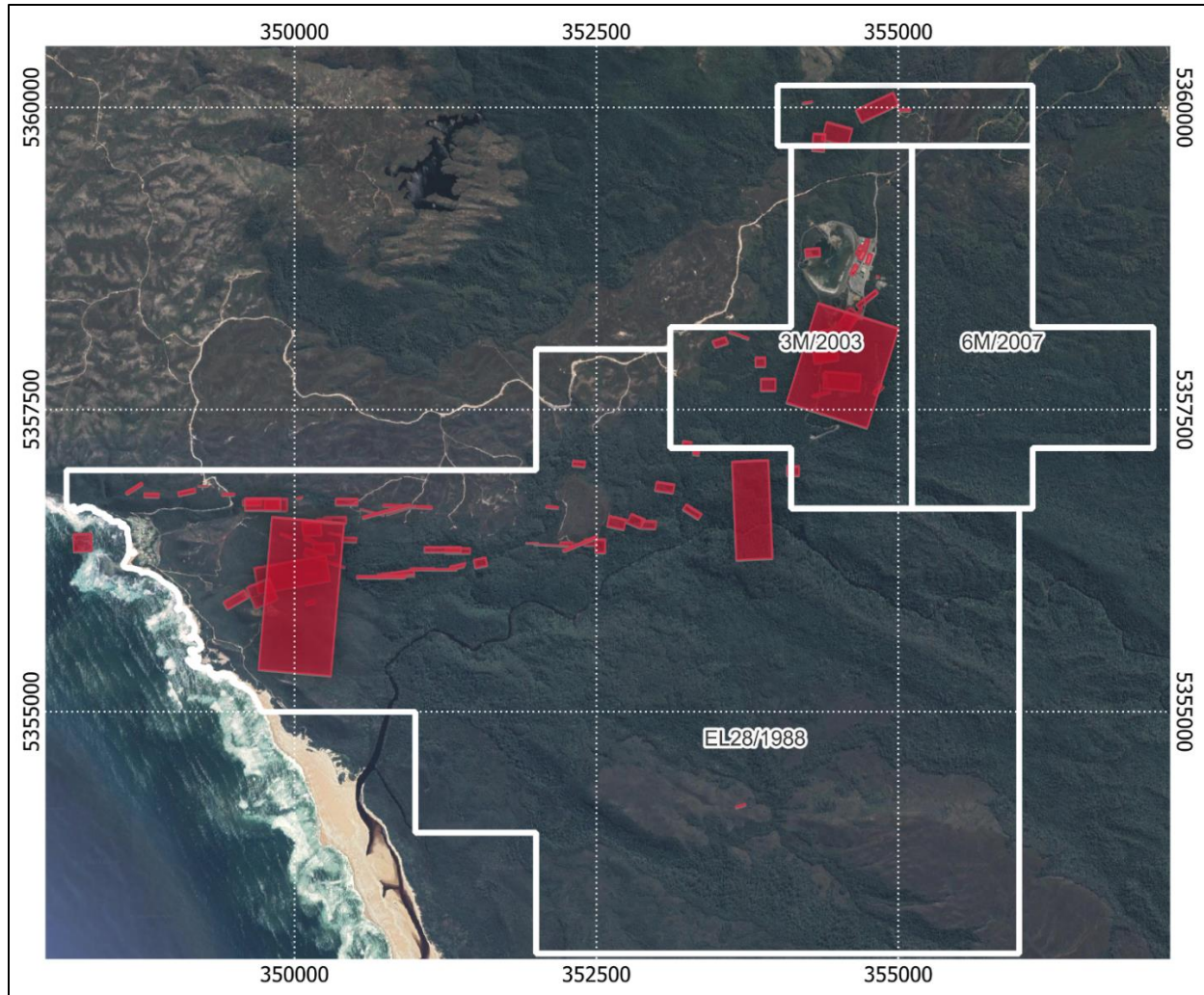


Figure 7. Plate models corresponding to the anomalies in Figure 5.

The results of the VTEM remodeling can be found in Appendix 1.

CONCLUSIONS AND RECCOMENDATIONS

In the current tenement year, TH007 was assayed, and produced no significant results. A DHEM survey on TH007 and an IP survey in the vicinity of TH007 were completed, and in conjunction with the reviewed and remodeled 2011 VTEM survey, have highlighted a significant number of anomalies which require follow up. The focus for the following tenement year should be to assess the new data in conjunction with existing geological data and drill the priority targets, particularly in areas between Trial Harbor and Avebury, and where serpentinite is known to exist from either drilling, geological mapping, or magnetics data.

PROPOSED EXPLORATION FOR FOLLOWING YEAR

The proposed exploration activities for the following year include:

- Review geophysical data in detail
- Plan drillholes based on geophysics and existing geological data
- Drill priority geophysical targets for 600m total diamond drilling

Denali EDGI Grant

A 3 hole, 600m drilling program was proposed in the Denali prospect area located approximately 5km west of Avebury mine and the application was accepted by MRT. Previous drilling between 2006 and 2011 by Allegiance and MMG identified skarn altered serpentinite style nickel mineralization, like that of Avebury, around the northern contact of the Trial Harbor Ultramafic body which requires follow up drilling. The best intercept was 3m @ 0.79% Ni from 61m in drill hole A223A. The aim of this program is to extend the known extents of this nickel mineralization and compare it with Avebury. A secondary aim will be to follow up some serpentinite dyke intersections in the hanging wall rocks just south of the contact between the host volcanoclastics and the Oonah formation. This contact has regional geological significance as it suggests over thrusting of the Oonah Formation onto younger rocks, and one drillhole is planned to intersect it at depth.

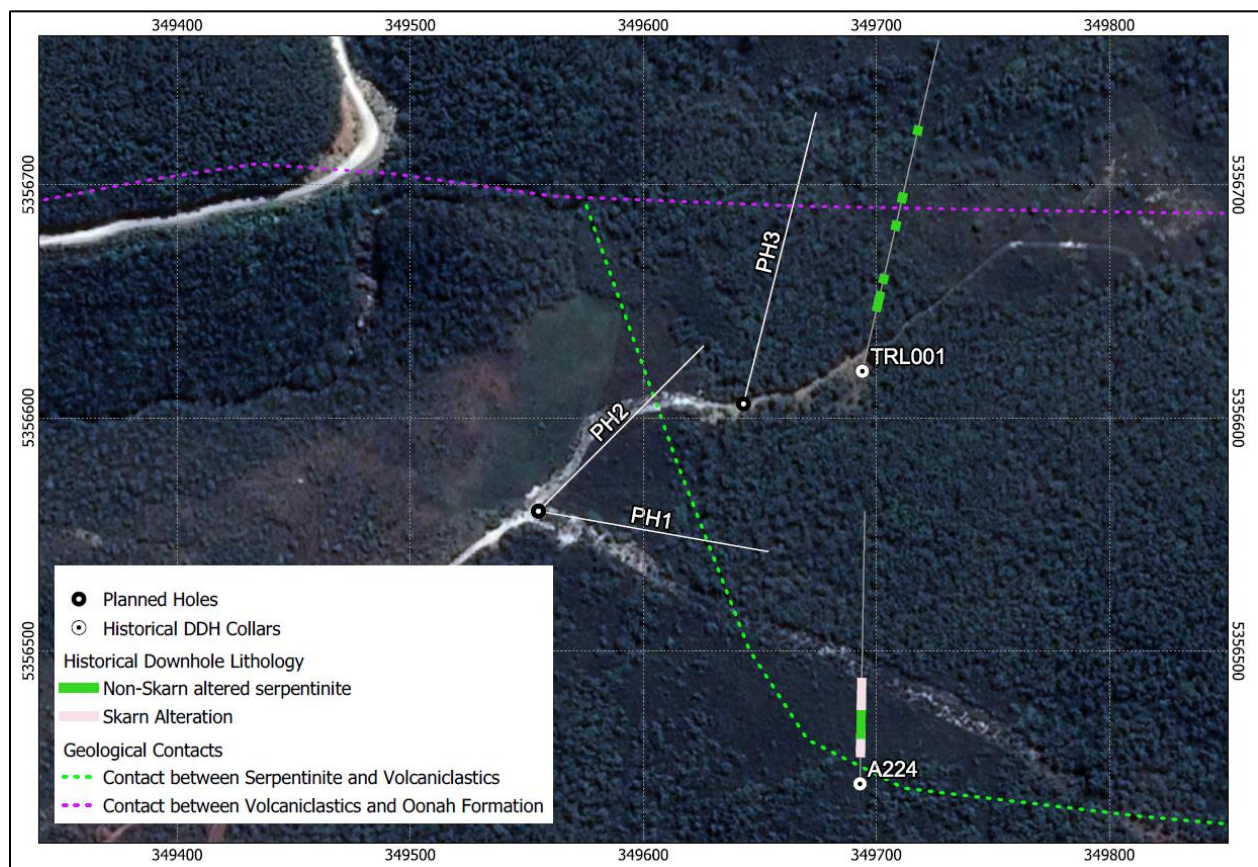


Figure 8. Planned EDGI holes at the Denali Prospect.

ENVIRONMENTAL MANAGEMENT

No environmental issues occurred during the tenement year. Now that the DHEM survey is complete on TH007, the collar can be capped to MRT specifications.

EXPENDITURE

The work commitments for the tenement year included assay of drillhole samples from TH007, DHEM and IP surveys in the vicinity of TH007, and review of geophysical and geological data for further targeting.

Geophysical Data Acquisition (DHEM+IP)	76,079
Geophysical Consultants	32,833
Helicopter work	10,973
Assays	1284
Track Cutting	18,162
Administration	10,000
Total	149,331

REFERENCES

Callaghan, T. 2011. Field investigation, unexplained VTEM anomalies, Avebury District, 2011. Prepared for MMG.

McGilvray, T., Denwer, K. 2011. Annual Report for the period ending December 2011. Prepared for MMG.

APPENDICES

1. Mitre Geophysics VTEM Survey Re-modelling Report
2. Fender Geophysics Acquisition Report
3. Mitre Geophysics TH007 DHEM Survey Report
4. Mitre Geophysics IP Survey Report