OM Manganese Ltd

Title holder (s): OM (Manganese) Ltd (100%)

Operator: As above

Tenement Manager: Australian Mining & Exploration Titles Services (AMETS)

EL22428
Bootu Creek Manganese Project

Final Technical Report

4th September 2002 – 31st October 2011

Authors: Reddell, C.T. - Exploration Manager, OM (Manganese) Ltd

Target Commodity: Manganese

Date of report: 07/12/2011

Datum/zone: GDA94 MGAz53

250k mapsheet: Helen Springs SE 53-10
100k mapsheet: Brunchilly 5760

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Abstract

Exploration Activity for EL22428 has included an airborne aeromagnetic/radiometric survey, a helicopter-borne EM survey, aerial photography, Aster multispectral data acquisition and interpretation, annual satellite imagery (Ikonos, Quickbird and Worldview-2) since commencement of Bootu Creek mining operations, reconnaissance prospecting, geophysical interpretation, RC percussion drilling, heritage clearances and assess track maintenance.

At the time of EL22428 expiring on 31st October 2011, the remaining 29 blocks were incorporated into EL28662.

All areas covered by EL28662 should remain on CLOSED FILE.

Electronic File List

File Name	File type	Content
EL22428_final_technical_ report	pdf	This report
EL22428_201112_02_collars	txt	Tab delimitated drillhole collar data
EL22428_201112_03_assays	txt	Tab delimitated drillhole assay data
EL22428_201112_04_geol_logs	txt	Tab delimitated drillhole geology data
EL22428_201112_05_DHSurvey	txt	Tab delimitated drillhole downhole survey data
EL22428_201112_06_logging_codes	pdf	Drillhole geology logging codes
Appendix 1 - Hoist EM Data	tif & ers	MapInfo compatible image file and grid data
Appendix 2 - ASTER Multispectral Data	tif & ers	MapInfo compatible image file and grid data
Appendix 3 - Aeromag-Radio Data	tif & ers	MapInfo compatible image file and grid data
Plate 1 - QuickBird Sat Image	pdf	Plan of satellite image
Plate 2 - Aerial Orthophoto Image	pdf	Plan of aerial photo image
Plate 3 - Worldview Sat Image	pdf	Plan of satellite image

1 Location and Tenure Details

1:250,000: SE 53-10 HELEN SPRINGS
1:100,000: 5760 Brunchilly

EL22428	Granted	04/09/2001	45 blocks
	Surrender	03/06/2010	16 blocks
	Retained	03/06/2010	29 blocks

EL22428 was granted for a period of six years from the date of grant and renewed without reduction for a two year period in 2008 and again in 2010 for a further period of two years for the 29 retained blocks (following surrender of 16 blocks on 3rd June 2010), see Figure 1.

EL22428 expired on 31/11/2011 following the grant of substitute EL28662.

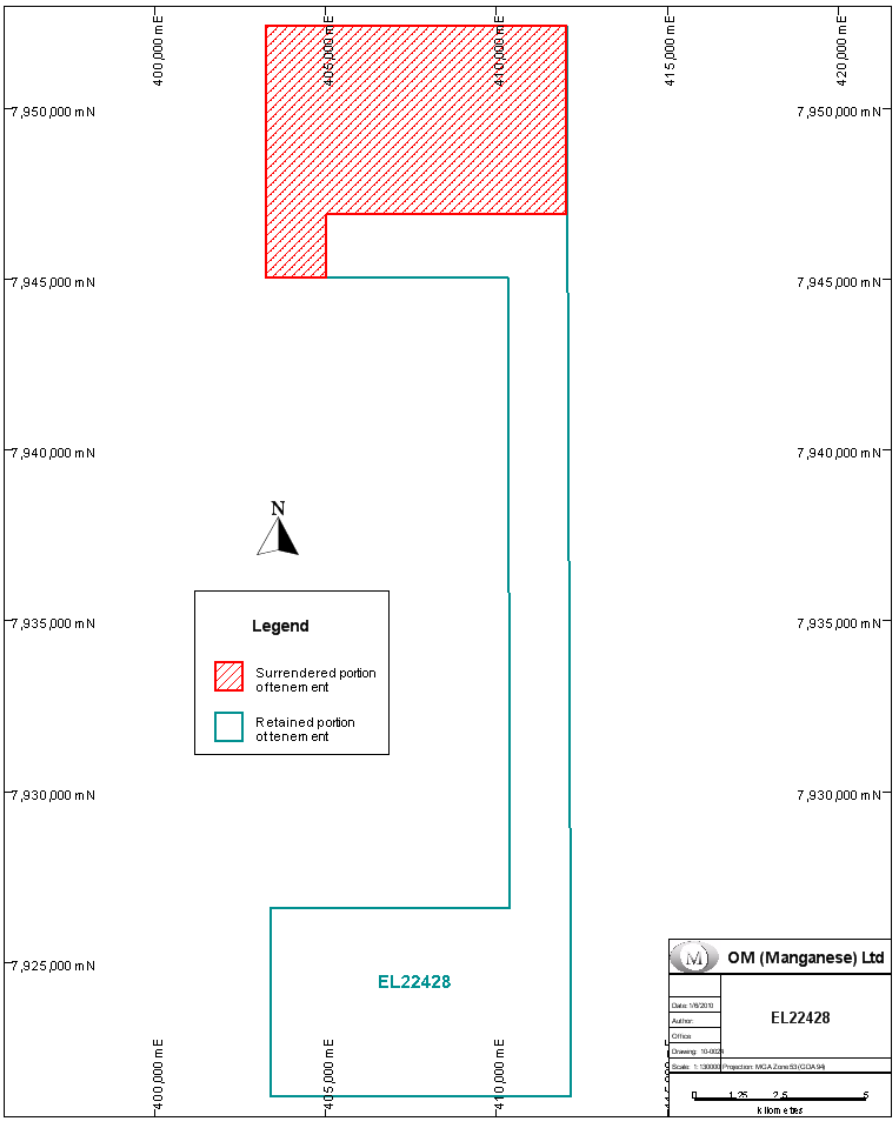

Figure 1. EL22428, plan of area partially surrendered and that retained.

EL28662 consolidated several exploration licences in the immediate Bootu Creek Project area including EL10412, EL22428, EL22940, EL25593 and EL28046, see Figure 2.

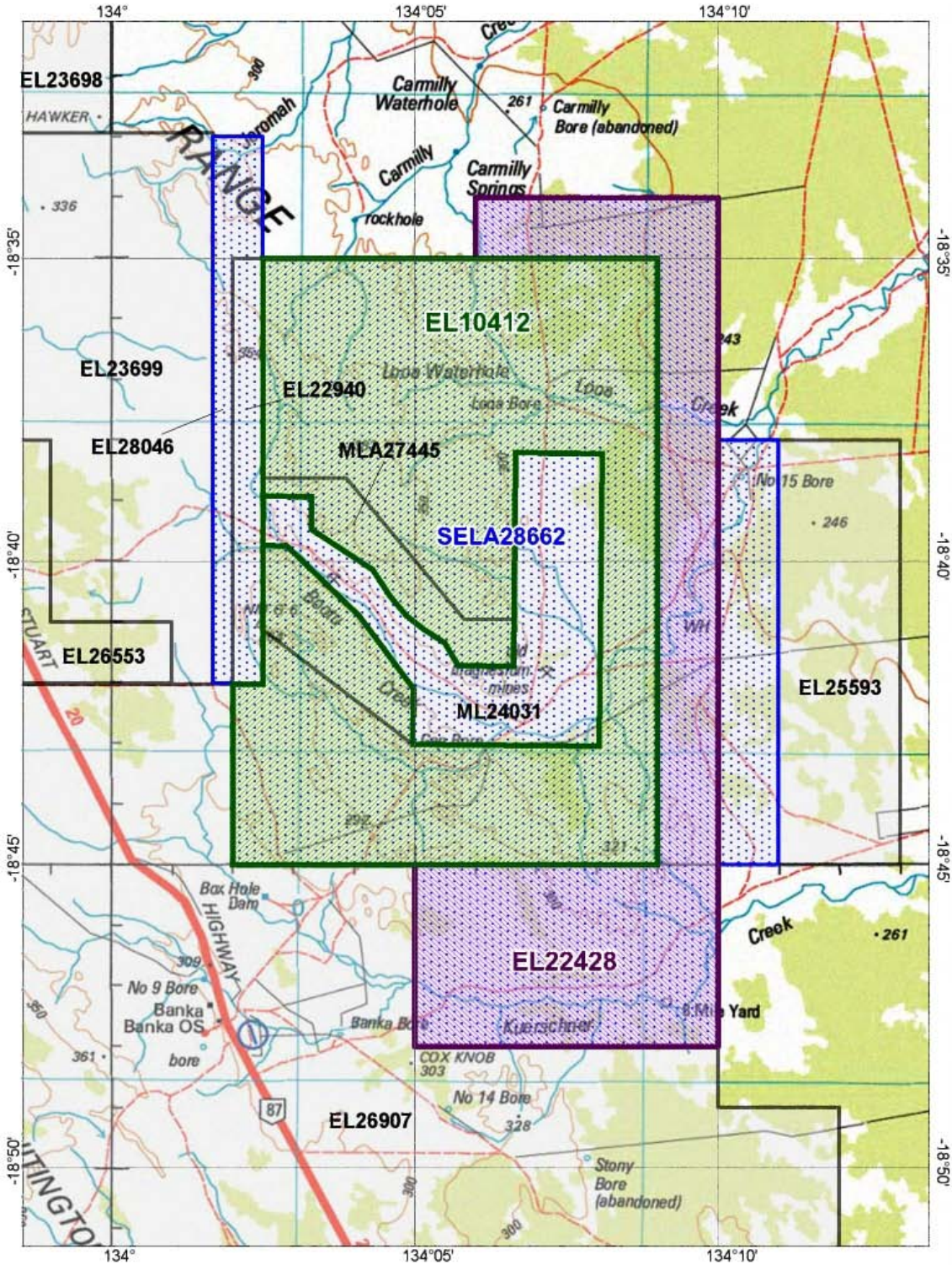

Figure 2. Plan shows the location of EL22428 in relation to the other OMM tenements, the Stuart Highway and local pastoral stations. The stipule area shows the extent of the replacement licence EL28662 (excluding ML24031 and MLA27445).

2 Geology

EL22428 is located entirely within the Tomkinson Creek Group in the Ashburton Province of the Tennant Creek Inlier. The favourable manganese bearing horizon is located on the contact between the dolostone and siltstone units of the Attack Creek Formation (Pta) and the overlying sandstone of the Bootu Formation (Ptb).

A number of manganese deposits occur around the eastern and western limbs of the Bootu Syncline, with current economic interest focused on deposits along the both the eastern and western limbs within ML24031. Bedding dips in this area are typically around 30°, with local variations ranging from 15° to 45°.

The principal manganese mineralisation consists of strata-bound layers contained within dolomitic siltstone and medium grained sandstone. There is a marked increase in manganese grade towards the base of the layers. True thickness of the layers is typically 5-8m, but varies from 3-4m up to 15m.

The immediate foot-wall is formed by altered siltstone and often hematitic. The immediate hanging-wall consists of a variable sequence of siltstones and sandstones, usually with hematite and minor manganese mineralisation. The sedimentary sequence generally coarsens upwards.

The mineralised horizon and hanging wall rocks are typically strongly weathered while the dolomitic units which comprise the footwall below the hematitic siltstone become fresh within only 5-10 metres of the mineralisation.

A significant portion of EL10412 hosts an elevated platform composed of Bootu Formation sandstone in the northwest, while the south west comprises rocks of the ridge-forming Short Range Formation and recessive Morphett Creek Formation.

Large areas of the licence are covered by recent aeolian deposits as well as alluvial deposits derived from the Bootu Creek Formation.

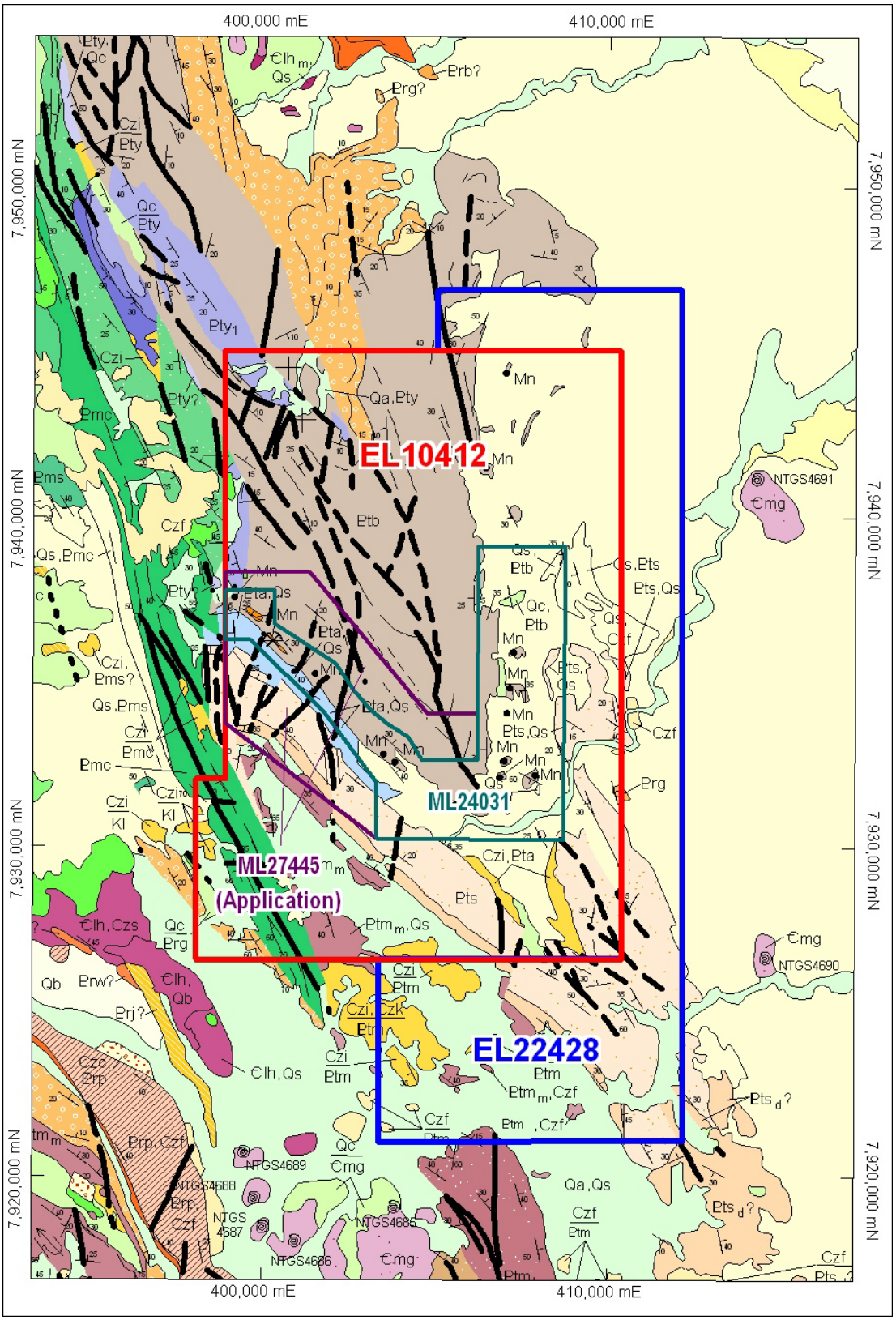

Figure 3. Geological map of EL10412 and EL22428 showing the various members of the Tomkinson Creek Group. Geological data is taken from the published Helen Springs 1:250,000 geology map sheet (*Hussey et al, 2001*)

3 Exploration Activity

3.1 Exploration Activity in Years 1-9 (to Sept. 2011)

Work carried out on EL22428 initially by Bootu Creek Resources and later by OM (Manganese) Ltd comprised

- Re-evaluation of existing geology, drilling and geophysical data
- Helicopter-borne Hoist-EM survey
- Acquisition and interpretation of Aster multi-spectral data
- Quickbird and Worldview-2 satellite imagery
- Combined aeromagnetic/radiometric survey
- Aerial photography
- RC percussion drilling

2002-2005 exploration activity for Bootu Creek Resources focussed almost exclusively on resource delineation and estimation, and on the Bootu Creek Manganese Project feasibility study in preparation for the proposed mining operations commencing in November 2005.

3.1.1 Helicopter-borne Hoist-EM Survey

In 2006 OMM acquired 1,525 line kilometres of Hoist-EM data over ML24031 and the strike extensions of the known mineralisation on EL10412 and EL22428. The detailed geophysical survey, conducted by GPX Airborne Pty Ltd, was subsequently used to generate drill targets for ongoing exploration programs (Figure 4).

Anomalism in the 4 lines extending east over EL22428 were eventually attributed to Cambrian volcanic covered by uo to 20m of alluvium.

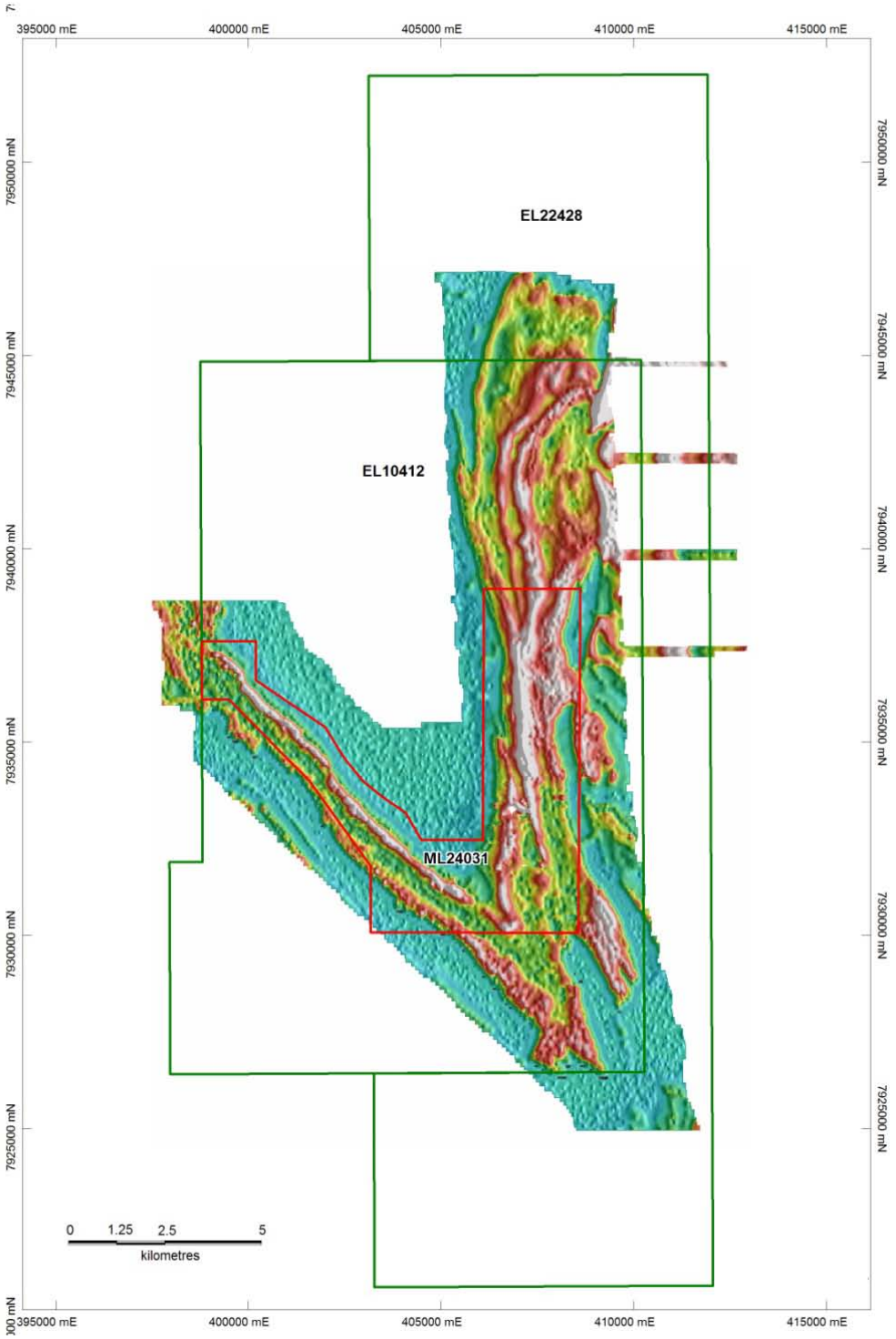

Figure 4. Hoist EM Survey (EM35m) and Tenure at time of survey.

3.1.2 Aster Multi-Spectral Data Acquisition

In 2006 OMM purchased ASTER multi-spectral remote sensing data over Bootu and other project areas, followed by the interpretation and report by Amit Eliyahu, attached as Appendix 1. Field check sampling points are shown on the figure below.

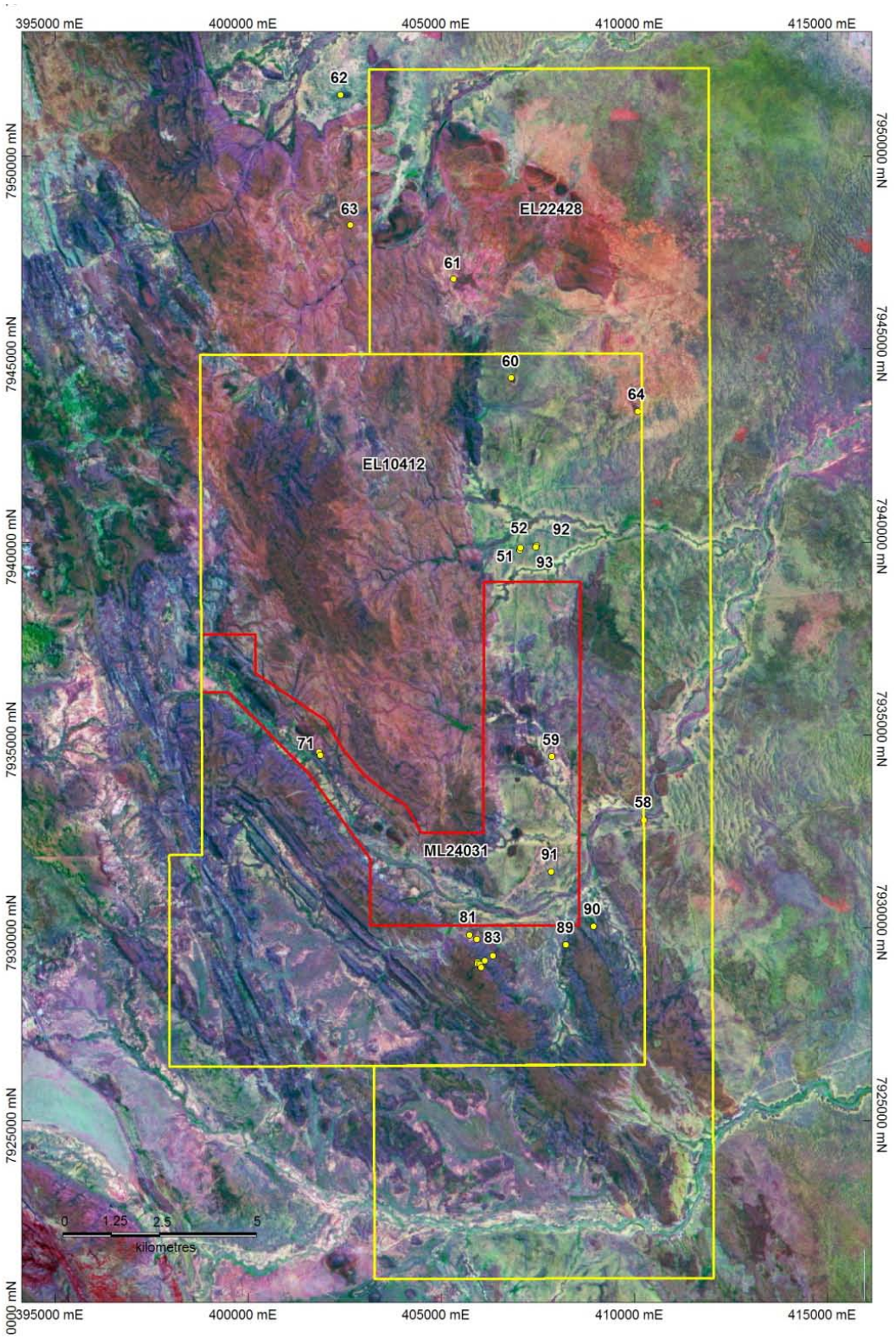

Figure 5. Aster image with reconnaissance sample points.

3.1.3 Detailed Satellite Imagery

In an effort to gain more detailed information about the location of tracks, fences, outcrop, other physical features of use to exploration, as well provide a more recent snap-shot of the current mine layout, a high resolution Quickbird satellite image.

The satellite was tasked to acquire data over the entire area (598 km^2) of EL10412, EL22428, and EL25593 as shown in Figure 6.

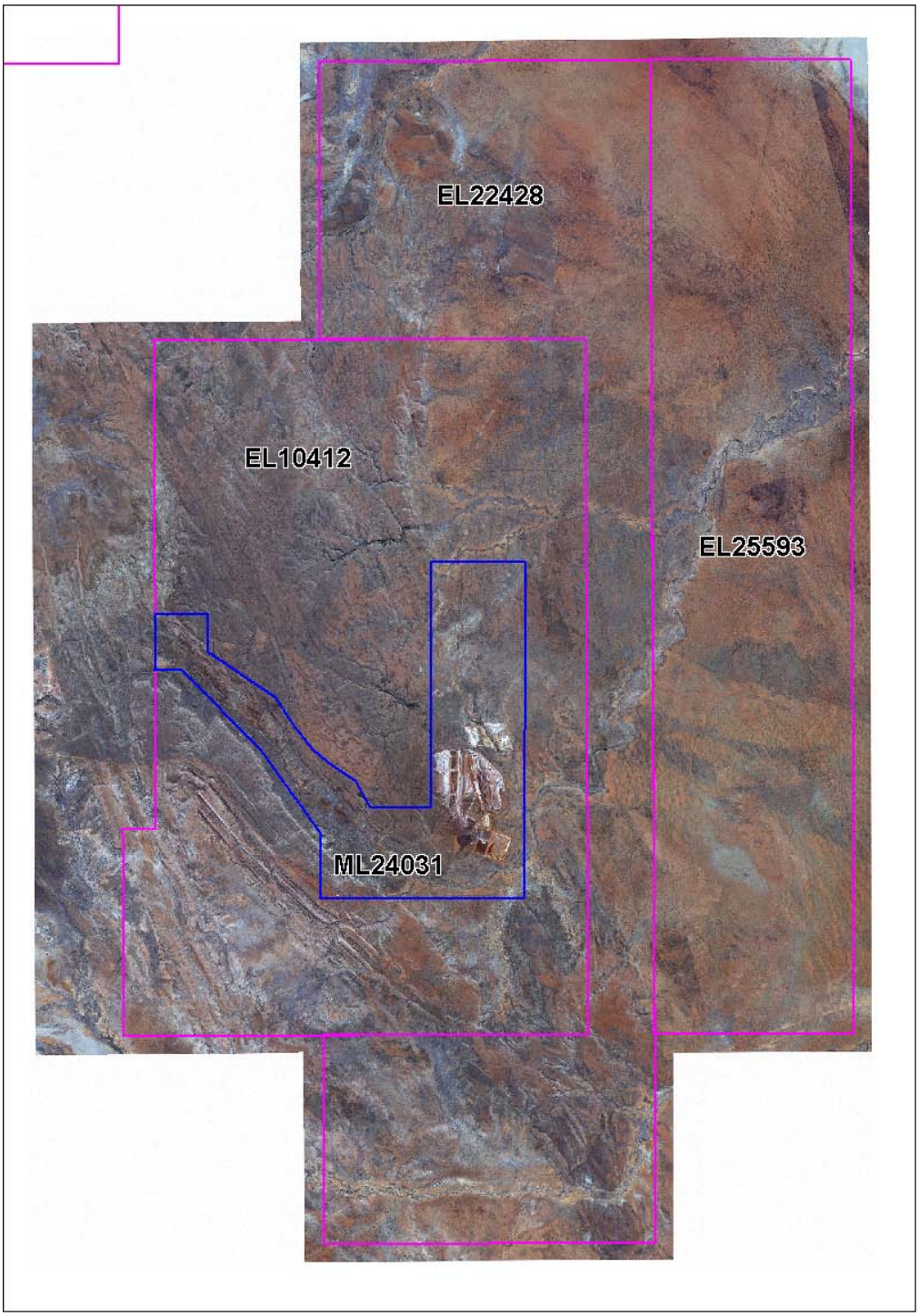

Figure 6. Quickbird satellite imagery captured over EL 10412, 22428 and 25593 and ML24031 in 2008.

3.1.4 Combined Aeromagnetic/radiometric Airborne Survey

In October 2008 GPX Geophysical Exploration Services were contracted to acquire both aeromagnetic and aeromagnetic data across all of OMM's tenement holdings. The total survey parameters are shown in Table 1 and images in Figures 7 and 8.

Type of Data	Aeromagnetics and Radiometrics
Survey datum	GDA94, MGA Zone 53
Survey line spacing	150 metres
Survey line direction	090-270 degrees
Tie line spacing	1,500 metres
Tie line direction	0-180 degrees
Mean terrain clearance	53 metres
Survey distance	10,605 km
Survey Date	October 2008
Survey by	GPX Geophysical Exploration Services

Table 1. OMM 2008 Geophysical survey parameters

The survey consisted of a northern block located over the Renner Springs and Helen Springs project areas and a southern block located over the Bootu Creek project area. The following images are from the southern block.

The aeromagnetic data was supplied as a located data files and with located images for TMI, TMI1VD, TMI2VD, TMIRTP, and RTP1VD.

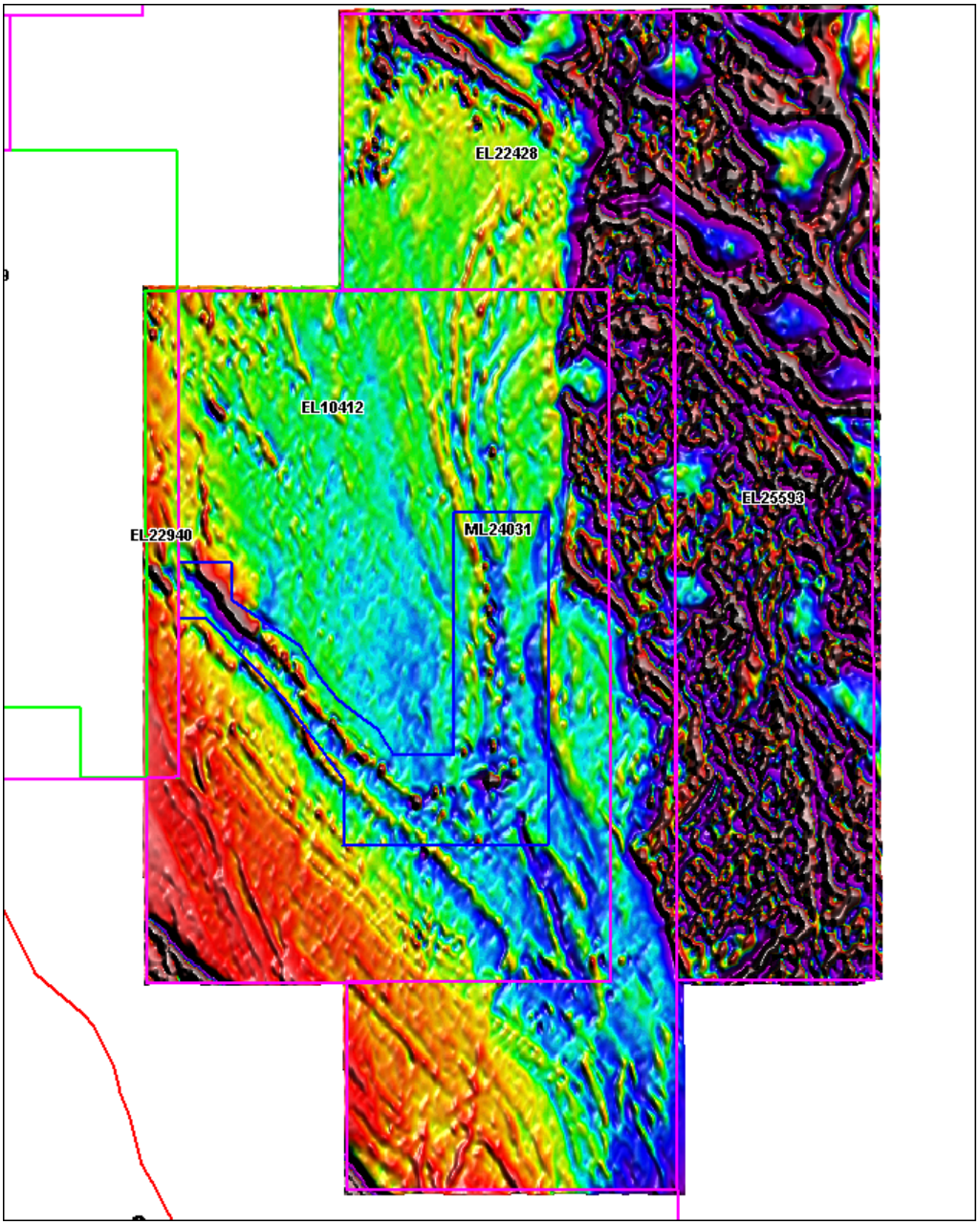

Figure 7. 1VDRTP magnetic image of EL10412, EL22428 and EL25593

The most interesting feature observed in the aeromagnetic imagery is a narrow anomaly running along the contact between the Attack Creek Formation and the Short Range Formation. This feature is coincident with an EM anomaly and was drill tested during the reporting period. No positive results were obtained from that work.

The image above shows the extent of the Helen Springs Volcanics in both EL10412 and EL22428 as well as the boundaries of units buried by Quaternary sand in the northern part of EL22428.

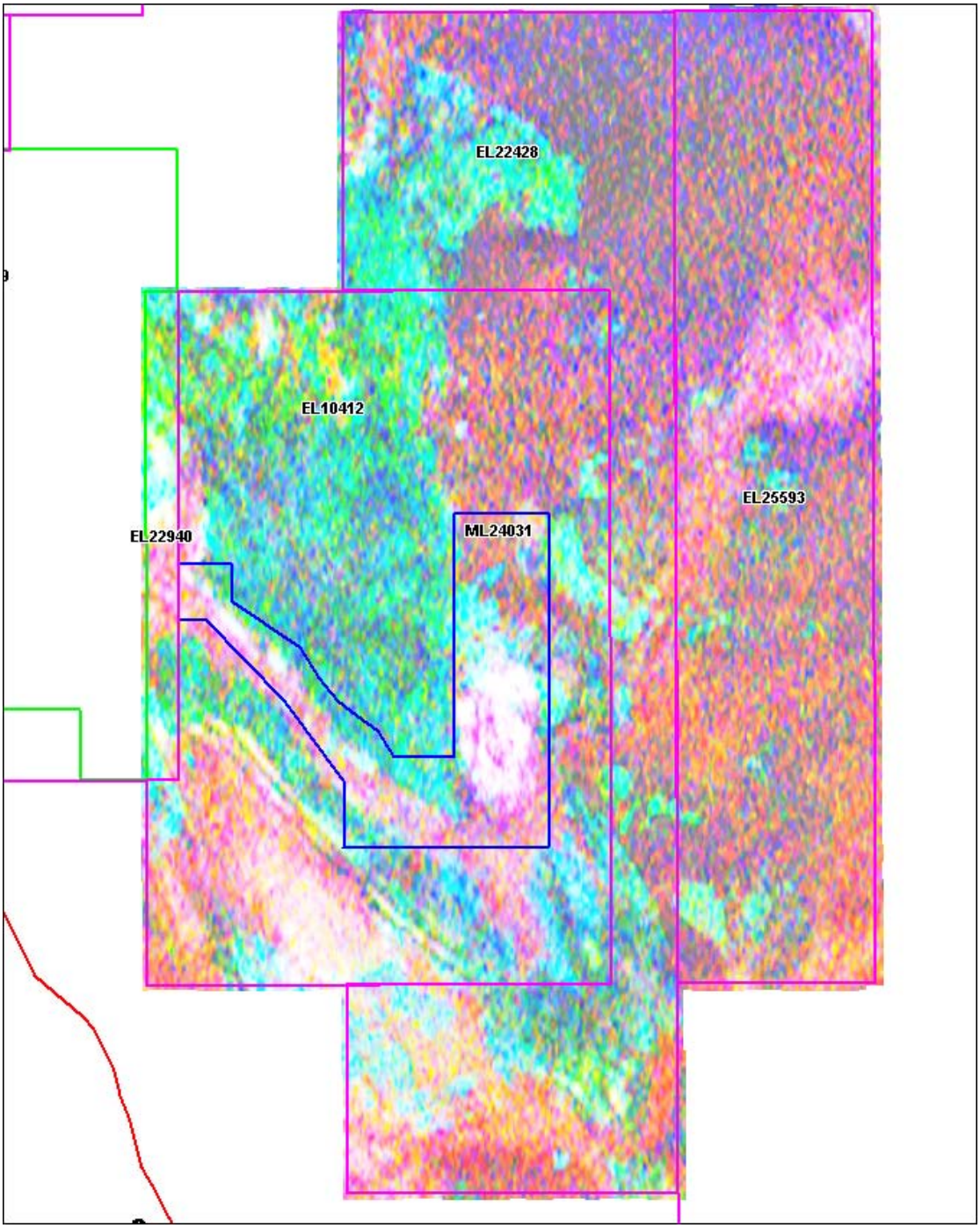

Figure 8. Ternary radiometric data across EL10412, EL22428 and EL25593. The bright patch in the centre of the image is the Bootu Creek manganese mine.

The Ternary radiometric image above highlights areas of outcropping sandstone (light blue), general extent of alluvium covered siltstone/dolomite (pink-white) and the extent of aeolian sand cover (red-orange).

The above aeromagnetic/radiometric data and previous Hoist-EM data was reprocessed using Vector Research's (a Perth-based geophysical consultancy) TargetMap software in early March 2009.

3.1.5 Aerial Photography

In April 2009 United Photo and Graphic services collected aerial photography over selected OMM tenement areas at a nominal scale of 1:20,000 (approximately 0.5m pixel size). The image shown in Figure 9 is for aerial photography over the Bootu Creek project area.

The data was passed on to Survey Graphics in Perth for processing. Alternative frames were orthorectified using 50 metre DEM and the frames were colour balanced and mosaicked seamlessly. The imagery is intended for proposed mapping projects.

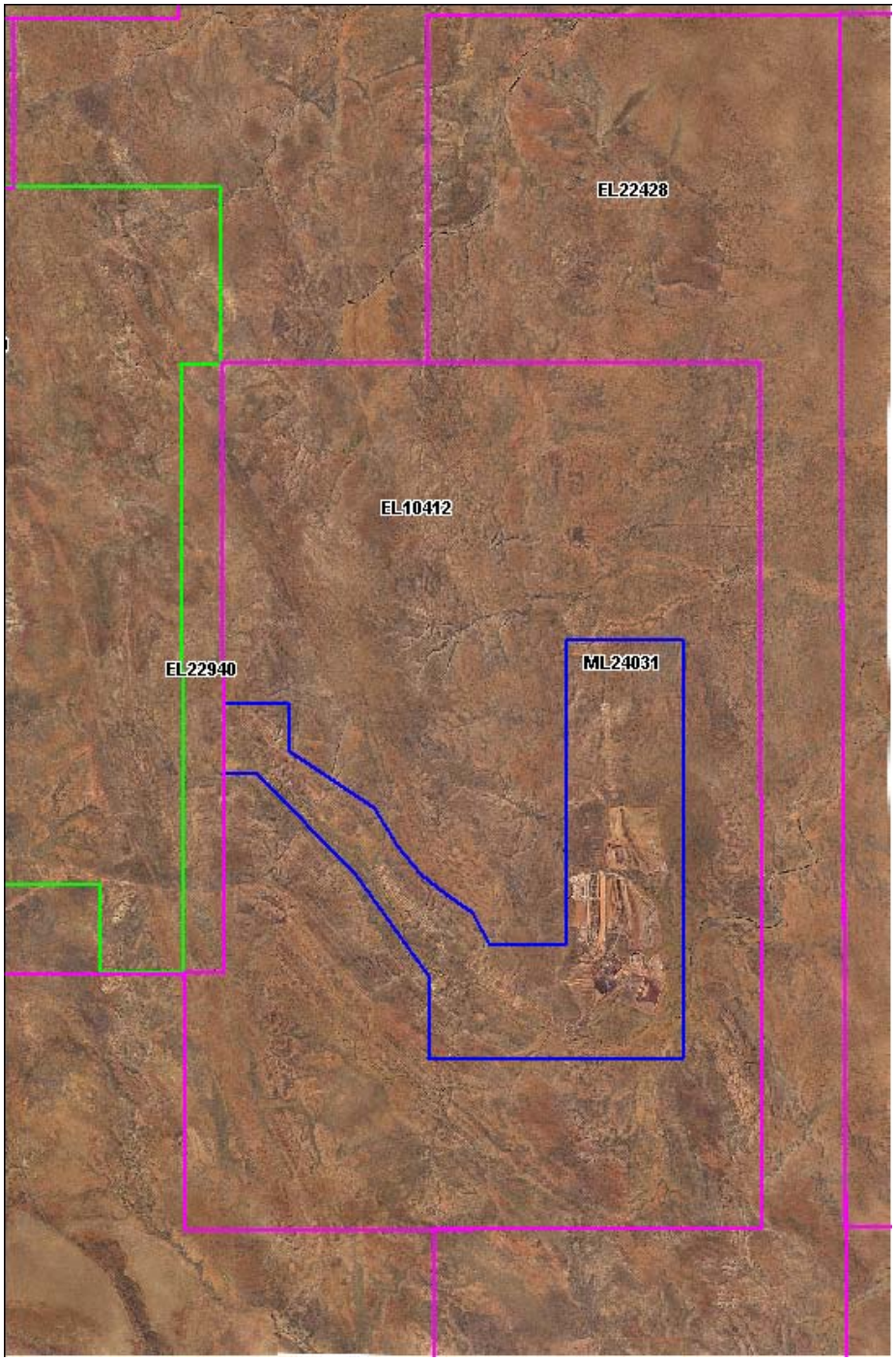

Figure 9. Image showing the extent of detailed photography over EL10412 and EL22428.

3.1.6 RC Exploration Drill Programs

A total of 7 RC percussion holes (690m) have been drilled on EL22428.

BCRC2350-2352 intersected prospective stratigraphy but failed to return any significant manganese mineralisation. BCRC2356 intersected prospective units beneath overlying Cambrian basalt and recent Quarternary cover.

BCRC2353-2355 are located in the portion surrendered in 2010 and failed to intersect prospective units.

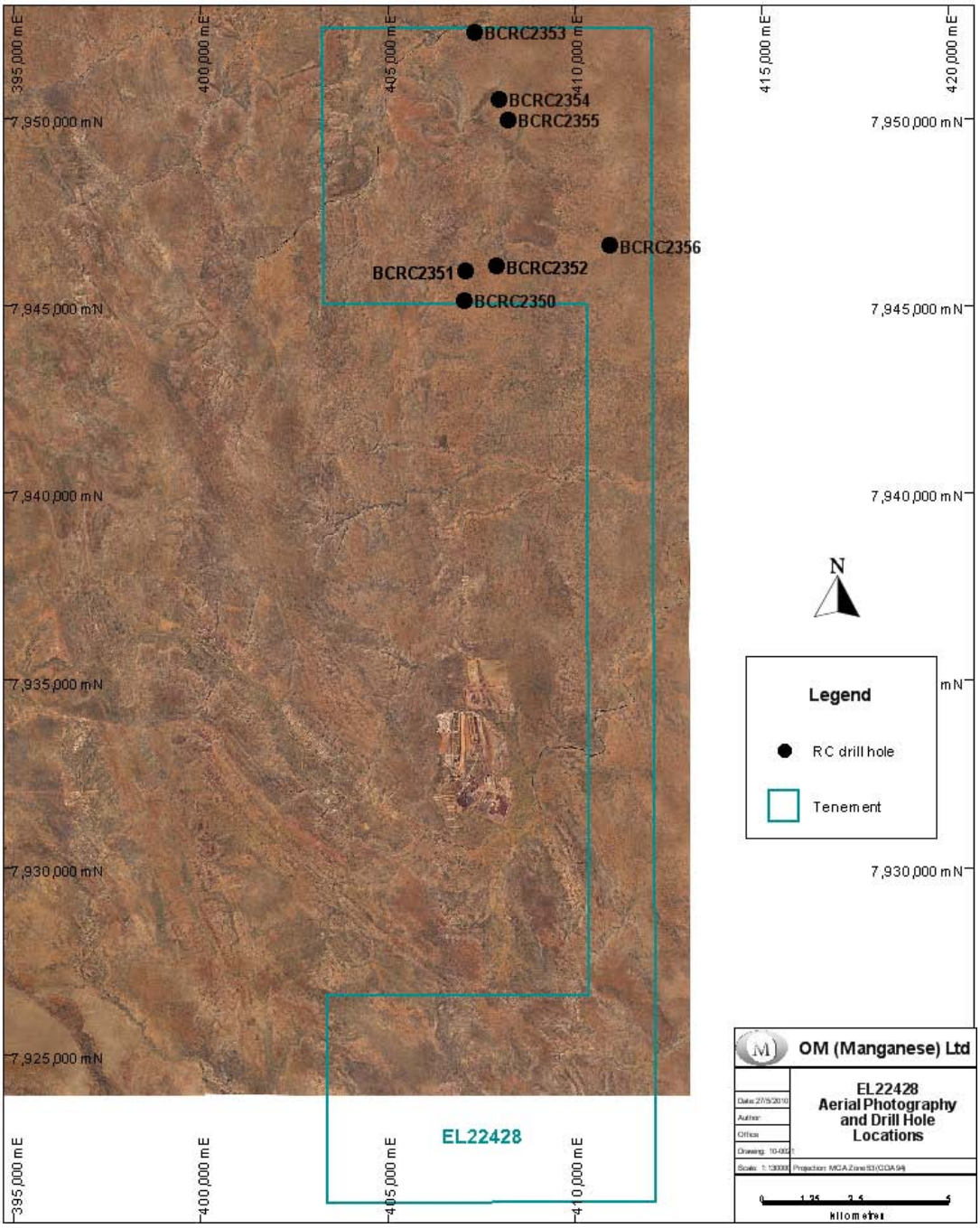

Figure 10. Plan of RC drill hole locations on EL22428 (pre partial surrender).

4 References

Hussey, K.J., Beier, P.R., Crispe, A.J., Donnellan, N., and Kruse, P.D., (2001) Helen Springs, Northern Territory. 1:250,000 geological map series and explanatory notes, SE53-10 (Second Edition) *Northern Territory Geological Survey*