

PROPOSAL
FOR AN EXPLORATION DRILL HOLE
IN THE
HEAZLEWOOD – LORD BRASSEY AREA



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Prepared by



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Introduction

Mineral Resources Tasmania recently announced that ERA1103 “Heazlewood River” would become available for an exploration licence application between 17th and 21st of September 2018.

Our interest in this area was sparked by the realization that two high quality airborne “VTEM” electromagnetic surveys completed in 2008 had not been adequately processed and there remain conductive anomalies of potential significance that have not been followed up.

New processing of the MRT Open File VTEM data has recently been completed. The output of this processing is a model of the three dimensional distribution of conductivity and therefore greatly improves the definition of conductive target zones for drilling.

The conductor of primary interest for this proposal is approximately 500 metres west-southwest of the old Lord Brassey nickel sulphide mine at Heazlewood. The newly processed data indicates that the conductor is “blind” to the surface, so if the conductor is mineralised then the fact that it is concealed suggests that older surface exploration would not have detected or recognized it.

Past exploration in the Lord Brassey area has included some drilling, but most is concentrated in the area extending approximately 1km north-northeast from the Lord Brassey Mine. There were 44 percussion holes drilled by Metals Exploration in 1988 to an average depth of 50 metres. Earlier, in 1969 Amax drilled 3 diamond holes (H1, H2, H3) and in 1971 Theseus drilled 2 diamond holes (TDH1, TDH2). Except for H1, none of this total of 49 holes came anywhere close to testing, albeit unknowingly at that time, the VTEM conductive zone of interest defined by the new processing.

All coordinates in this proposal are GDA94, MGA Zone 55.

Reasons for interest in the Lord Brassey VTEM conductor

- Company reports written after the completion of the VTEM survey point to the area immediately west of Lord Brassey, termed 'VTEM Anomaly E' in some of those reports, as an area of primary interest. McDougall (2013) comments that there is "*the strong possibility of a buried nickel sulphide body at anomaly E*" and "*The highest priority target is the area south [southwest] of Brassey Hill which AusNiCo have termed Anomaly E. This area will be the initial focus of ongoing work*". Despite those intentions and high ratings it appears that no meaningful further exploration work was done on 'Anomaly E'.
- Systematic processing of the VTEM data into a model of the 3D distribution of conductivity has apparently never been done before across the whole dataset. In the past there has been limited modelling and assessment of VTEM data in some localised areas such as Wilson's and Fenton's, however nothing noteworthy of this type has been done for 'Anomaly E' at Lord Brassey. Much of the VTEM data interpretation to date has been done based on raw data plotted as profiles or maps; those interpretations and resulting targets will not have adequately considered the 3D conductivity distribution as is now available from the new processing.
- The 3D conductivity data indicate that the 'Anomaly E' conductor is blind to the surface but within comfortable drilling depth; significant mineral deposits in these kinds of concealed positions that are those most likely to have remained undetected by historic exploration.
- Nickel sulphide is present in the immediate area. Heazlewoodite (Ni_3S_2) was the primary ore in the old Lord Brassey mine some 400-500 metres away, although there the mineralised shoots are very thin and discontinuous. Note that the VTEM conductivity data shows no evidence of a conductive anomaly *directly over the mine itself*, which is consistent with the very small amounts of discontinuous ore that occur in the mine.
- Other mineral occurrences such as copper and lead/zinc have been found in the nearby region, so it is not totally implausible that a conductive anomaly such as 'Anomaly E' might represent a mineral occurrence other than nickel.
- Diamond hole H1 drilled by Amax in 1969 is the only hole positioned with a chance of having testing any part of the conductive zone associated with the 'Anomaly E' conductor. However the hole appears *not* to have tested the conductor because: (a) it stopped short of the significant conductive zone by some 100m, and (b) it was drilled towards a relatively less-conductive gap apparent in the 'Anomaly E' conductor.
- In the Brassey Hill / Gabbro Hill area the new 3D conductivity data suggests that the 'Anomaly E' conductive zone becomes stronger and better defined towards the southern end, and this is the recommended target area for the proposed drill hole.

Figures

The following comments apply to the accompanying 11 figures.

In addition to the figures there are 4 digital files available:

- 3 “kmz” files which will open in Google Earth to show;
The location of ERA1103 and Gregory Prospecting’s adjacent EL 6/2016.
The location of the Lord Brassey Mine Fossicking Area.
The location of the 6 suggested options for collar locations shown in Figure 11.
- 1 “mpg” file which is a video showing the VTEM conductivity data displayed in a 3D viewer.
Short of having access to the interactive 3D viewer on a computer, this is the best overall visualization of the 3D conductivity data generated from the recent processing.

Figure

1. The MRT information page for ERA1103.
2. The MRT summary map for ERA1103.
3. A closer view of the ERA1103, also showing Gregory Prospecting’s EL 6/2016 immediately to the south of ‘Anomaly E’. The Lord Brassey Fossicking Area is also shown.
4. Same map base as Figure 3, showing the VTEM *raw* signal from the two 2008 surveys. The red/white areas are the primary conductive anomalies. Note that this data presentation gives a simple overview of total coverage and highlights which areas are generally more conductive, but it cannot convey a full understanding of which particular anomalies are of interest for mineral exploration purposes. For example some anomalies may be due to surface weathering and related causes so will not be of interest, while other anomalies may be due to subsurface mineralisation; further processing of the raw data is needed to rank anomalies and decide which are higher priority ones for further exploration.
5. Detailed location plot of historic diamond drilling.
6. Same map base as Figure 5, showing the coloured subsurface VTEM horizontal conductivity “slice” at an elevation of +100m RL (AHD datum). NOTE that this plot does not convey the true geometry particularly well; with an *interactive* 3D viewer on a computer screen you can see that the hole did not get as close to the high conductivity region (warm colours) of ‘Anomaly E’ as this plot tends to suggest.
7. A perspective view looking NW showing *vertical* coloured conductivity “sections”; one section is calculated for and displayed vertically below each flight line. This figure is just an overview and conveys some idea of what the full conductivity dataset looks like. In this particular view the conductivity sections in the north are of course hidden below the topography as well as behind the southern sections, but the area of interest for the current drilling proposal is in the south which is seen in this figure.
8. A perspective view centred on old diamond hole H1, and expands on comments made above. This figure attempts to better show that while H1 was the only hole near the conductive region, it was drilled into a gap between the higher conductivity east and west zones, as well as being aimed roughly towards a lower conductivity (green coloured) embayment seen in the conductivity slice at +100m RL. The ‘depth slice’ seen here is the

same one shown in figure 6. As mentioned above, an on-screen interactive 3D display would be a better way to understand the geometric relationships involved.

9. Three proposed options for a drill hole into the 'Anomaly E' conductor on flight line 10710 which was flown along 5,408,200 N. In figure 6 this is the 3rd section from the south.
10. Three proposed options for a drill hole into the 'Anomaly E' conductor on flight line 10340 which was flown along 5,408,300 N. In figure 6 this is the 4th section from the south.
11. A plan view showing the 6 suggested options for the collar location of a proposed drill hole. Access to these locations would presumably be from the track up to the Lord Brassey mine. Ground conditions and so on will dictate which of these options is the more practical.

Summary

New processing of the 2008 vintage VTEM data has generated a model of the 3D subsurface conductivity distribution, and has defined a discrete and concealed conductive target anomaly just to the west of the old Lord Brassey nickel sulphide mine. This area is termed 'Anomaly E' by the more recent holders of the ground, and had been rated as their "*highest priority target*", however no meaningful further exploration work on it has since been done. Their definition of the target zone was also not very precise, and not based on a 3D subsurface conductivity distribution model. The newly defined target conductor represents a fresh opportunity to drill-test the anomaly.

References

Mineral Resources Tasmania has numerous company reports available for download.

Those of main interest range in date from

Gilfillan and Marshall, 1969, Amax progress report:

70_0644 - Heazlewood Nickel - Tasmania, Australia.

through to

McDougall, 2013, Aus Tin annual report:

13_6664 - EL50/2011 - Heazlewood annual report May 2012 - May 2013.

The McDougall report gives a good condensed summary of all the previous work and exploration history for the area.

Mineral Resources Tasmania

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ERA Reference ERA1103

Title Heazlewood River

Area 81 sq km/blocks

Parts 1

Status Current : Applications may only be made during the specified application period below

Application Period 17/09/2018

Open

Application Period 21/09/2018 

Close

Product Category(s) Category 1 - Metallic Minerals, Atomic Substances and any other mineral category that may be available within the defined area

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[View Area On Map](#)

The exploration release system offers newly available ground at a nominated date, at least two months after expiry, revocation or surrender of a licence. During that time the area is unavailable for application.

After the end of the moratorium period applications may be lodged, for Exploration Licences or Mining Leases, by courier, registered mail or in person for the whole or part of the ERA. Applications for **ERA1103** may be made on **17/09/2018** and up to four working days thereafter. All applications received during this five day period will be treated as simultaneous and have equal priority.

Applications with equal priority will be considered and decided on merit. If no applications are received during the five day application period the area becomes open ground for 'over the counter' application.

Related Reports [Company Report - Onshore: : EL50/2011 - Heazlewood annual report May 2012 - May 2013](#)

[Company Report - Onshore: : Heazlewood annual report May 2013 - May 2014 - EL50/2011](#)

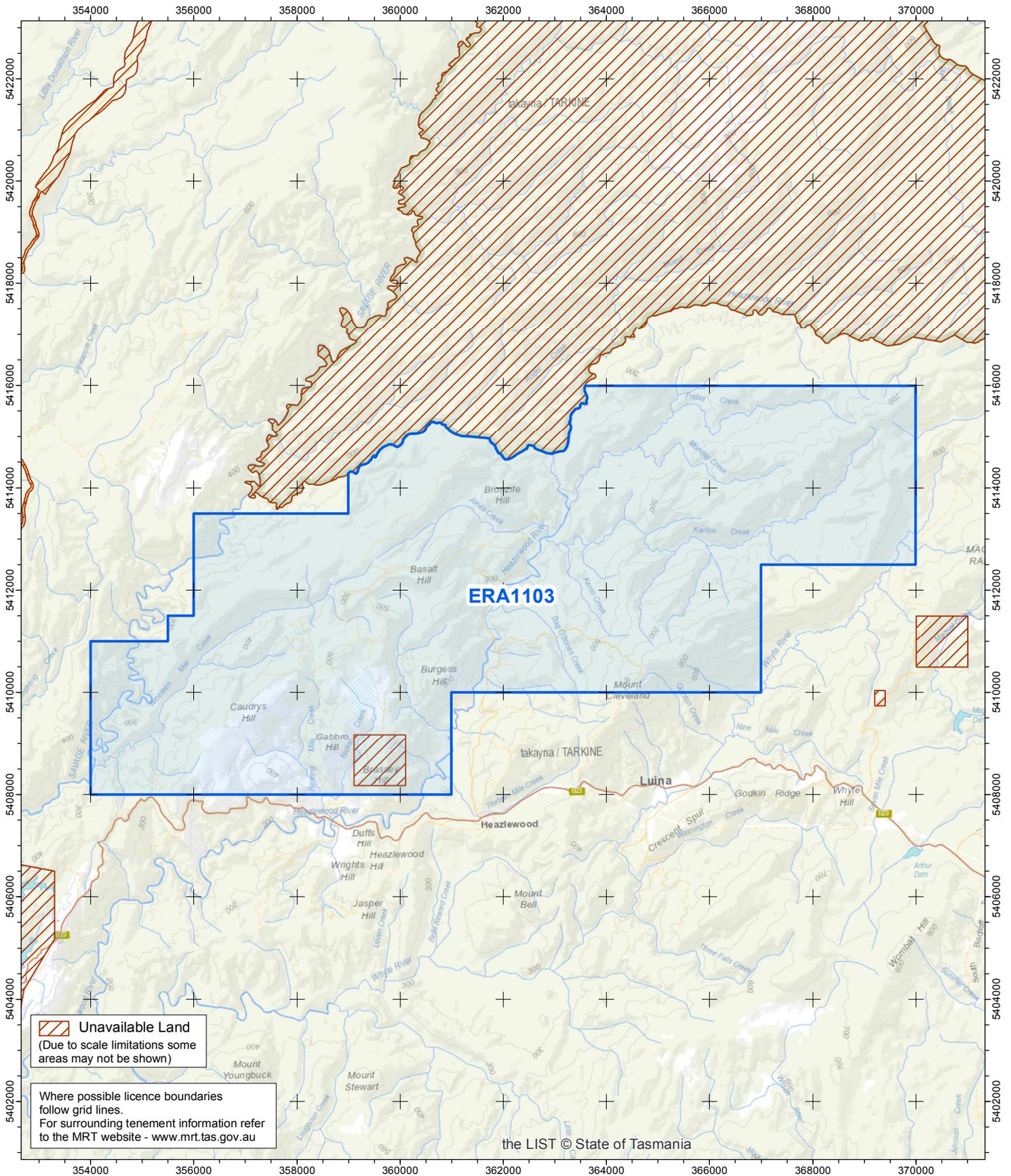
[Company Report - Onshore: : Final relinquishment report for EL50/2011](#)

[Company Report - Onshore: : Heazlewood annual report May 2015 - May 2016 - EL50/2011](#)

[Company Report - Onshore: : Final report for relinquished proportion of EL50/2011](#)

[Download Information Sheet](#)

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Unavailable Land
(Due to scale limitations some areas may not be shown)

Where possible licence boundaries follow grid lines.
For surrounding tenement information refer to the MRT website - www.mrt.tas.gov.au

HEAZLEWOOD RIVER ERA1103 81km²
Formerly EL50/2011
(Category 1 Minerals)

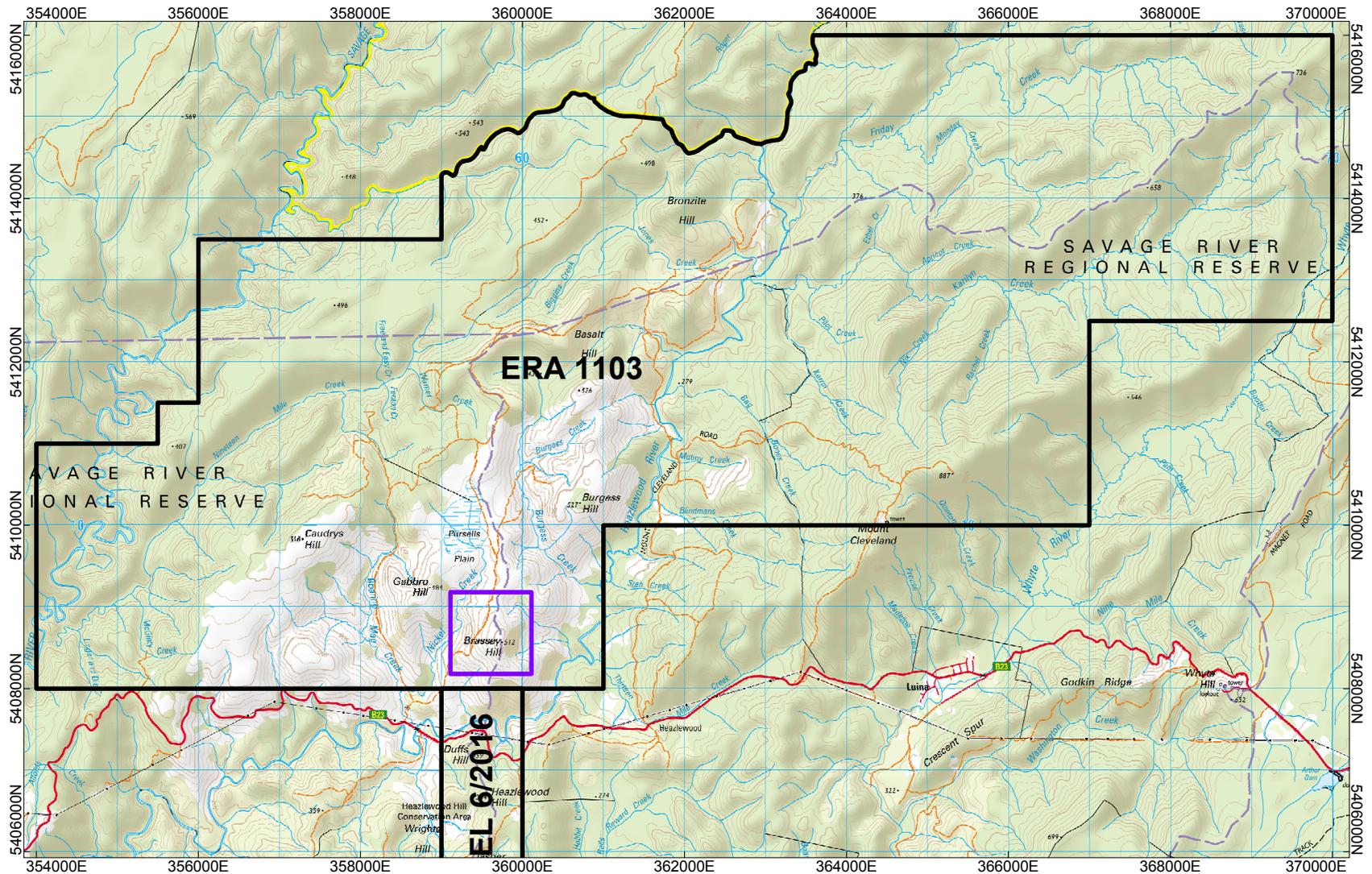


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Coordinate Datum - GDA94 MGA Zone 55



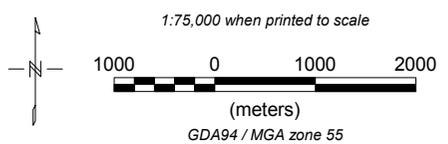
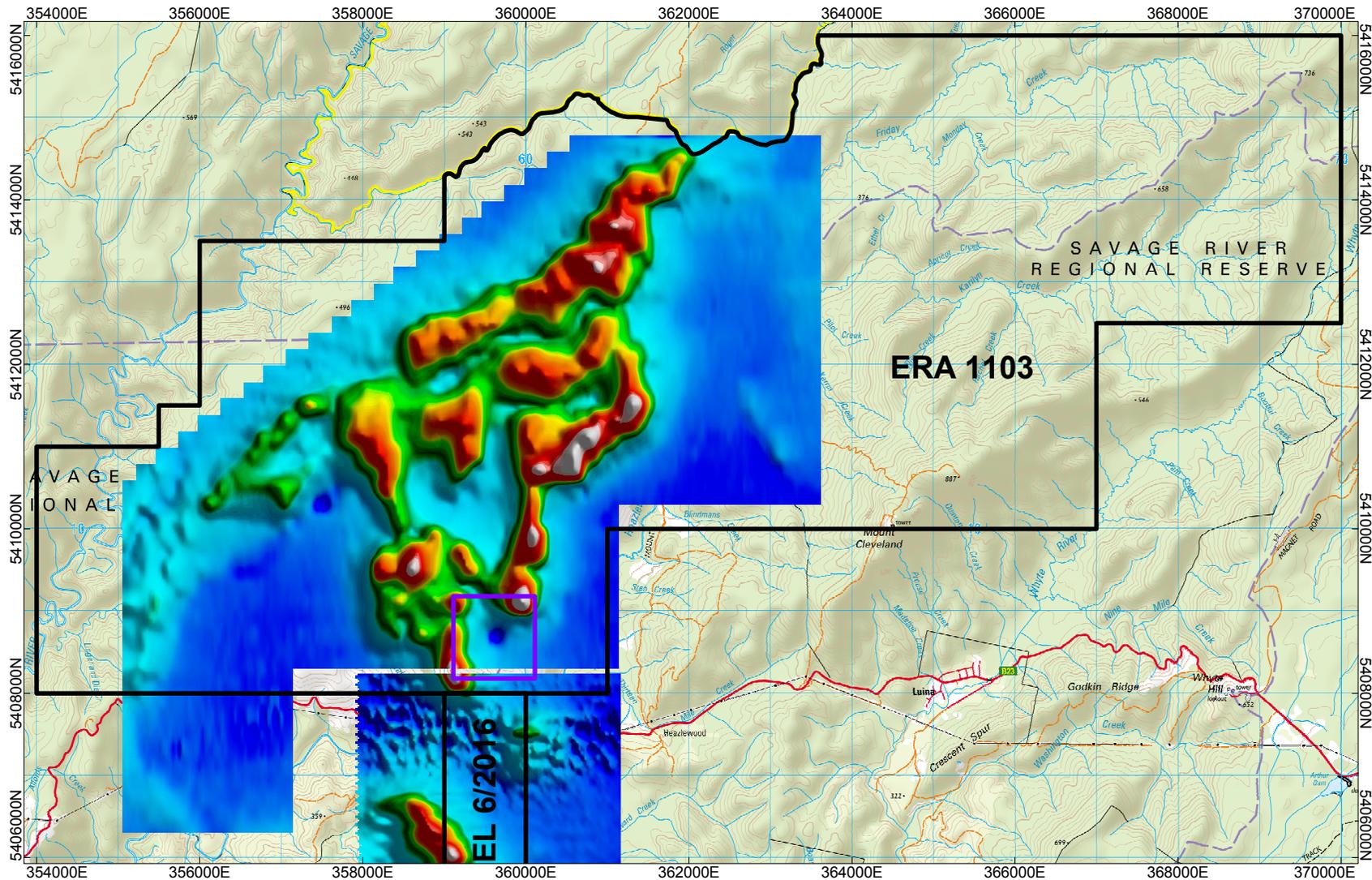
Base image by TASMAR
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Tenement Status
 ERA 1103 - Heazlewood River
 EL 6/2016 - Ron Gregory Prospecting

 Lord Brassey Mine Fossicking Area

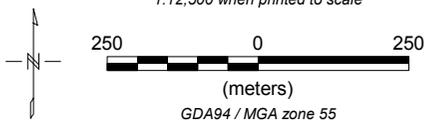
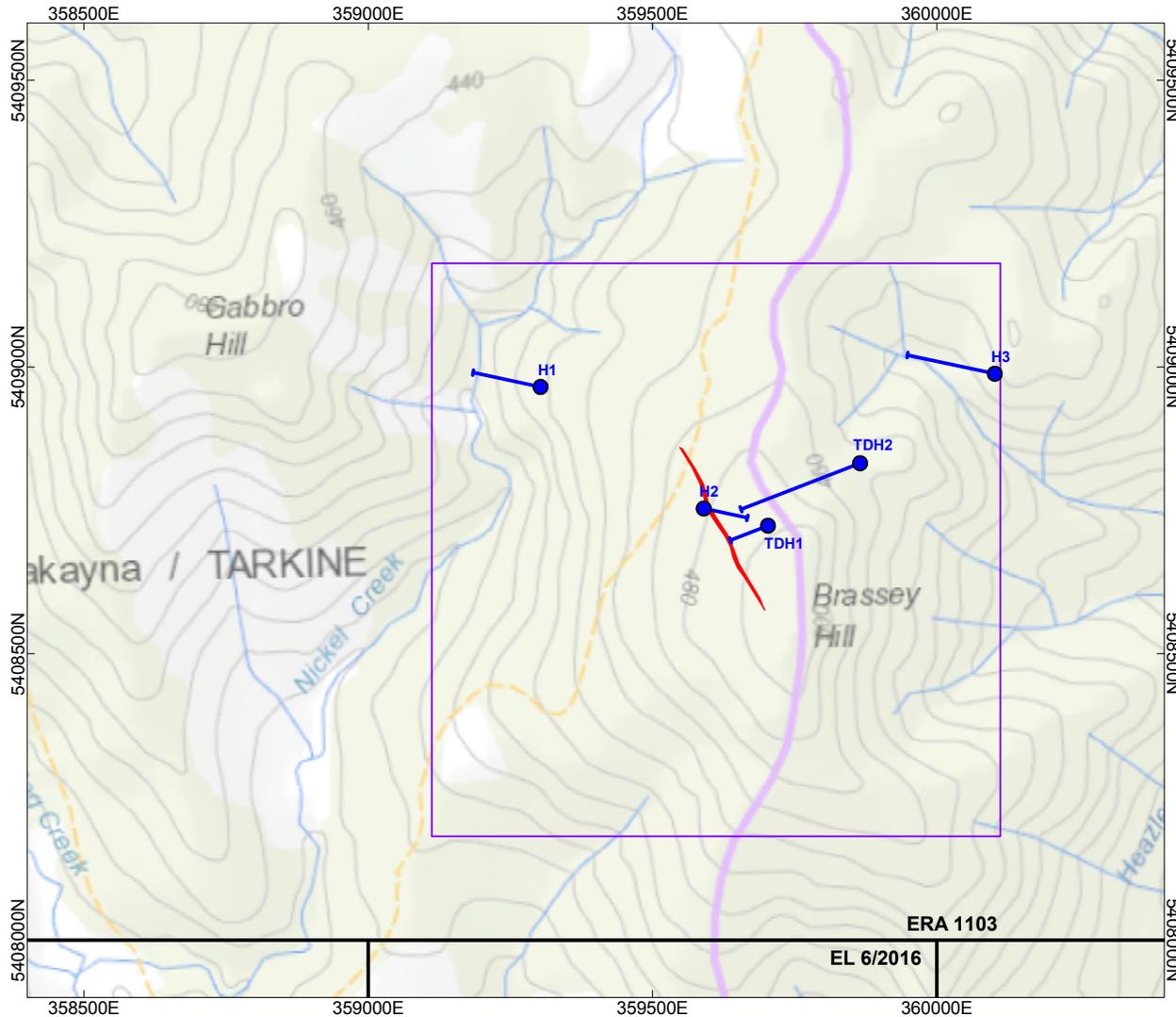
Figure 03



VTEM Airborne Electromagnetic Surveys
 Bass Metals (north)
 Mincor (south)

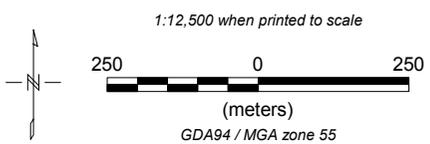
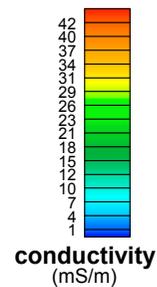
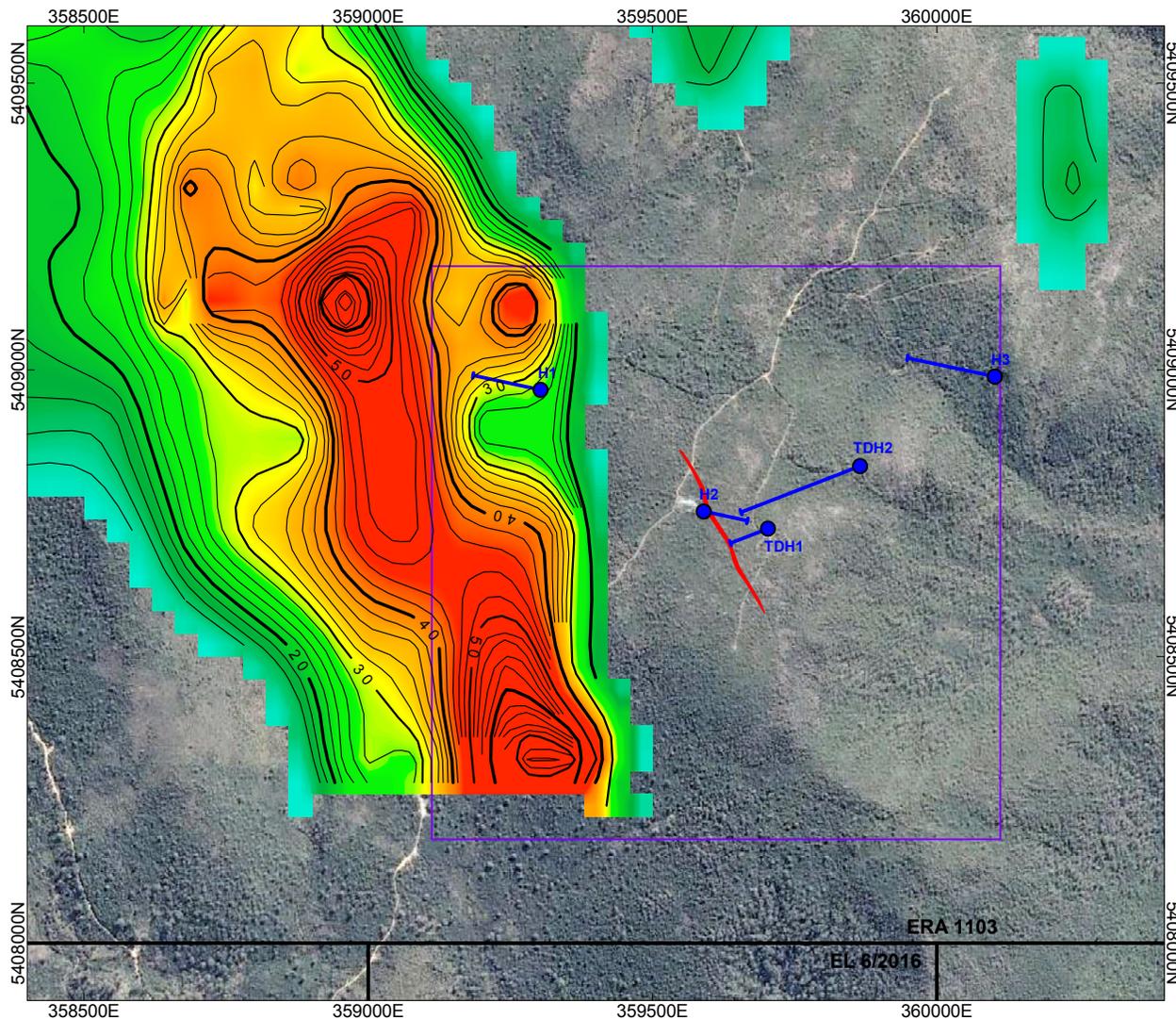
 Lord Brassey Mine Fossicking Area

image showing Bass Metals VTEM survey B-field data for channel 15
 image showing Mincor VTEM survey dB/dt data for channel 20



Lord Brassey Mine Area
 showing historic diamond drilling (Amax / Theseus)
 and the Lord Brassey underground workings

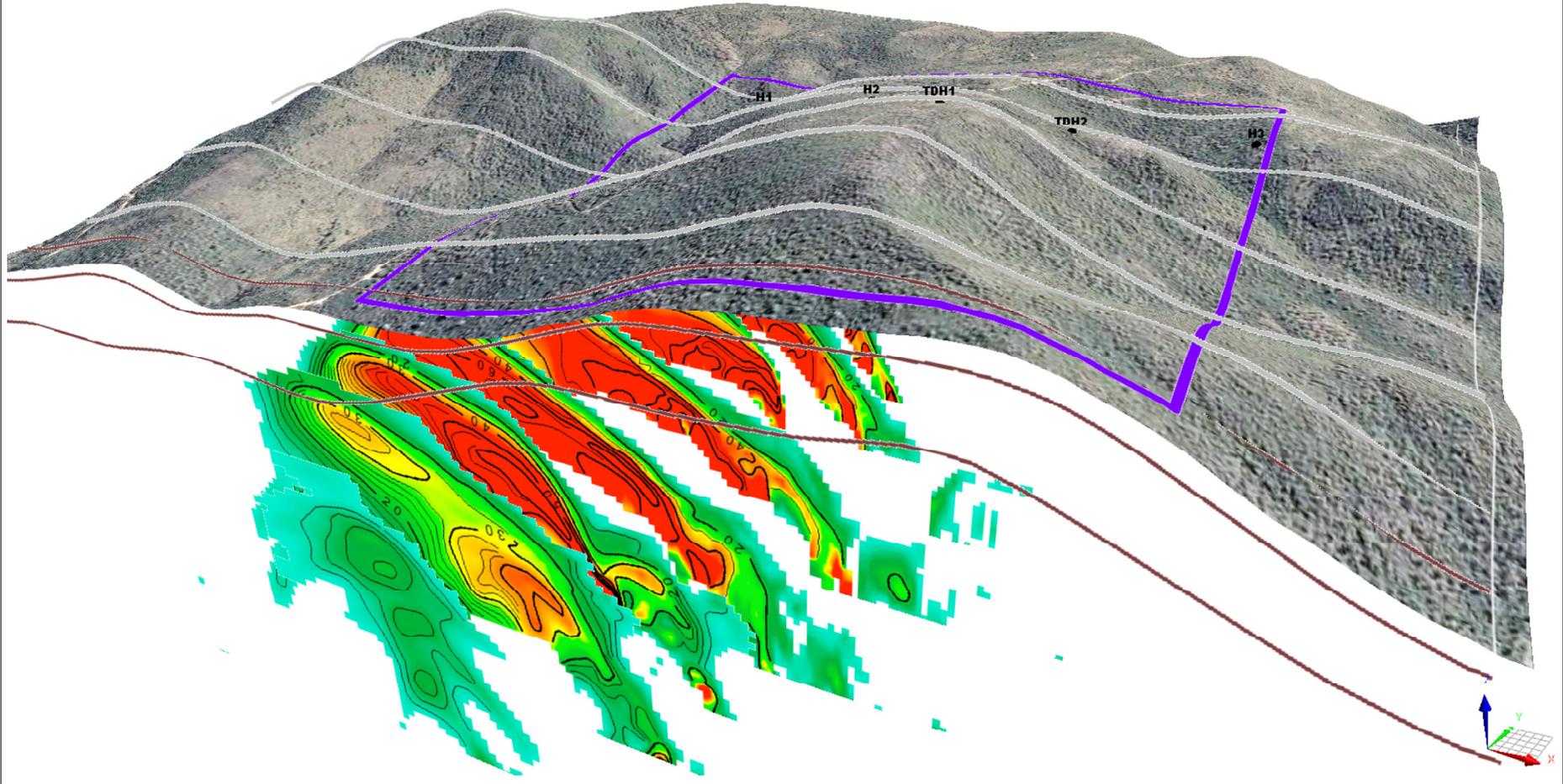
-  Lord Brassey workings (nickel sulphide)
-  Lord Brassey Mine Fossicking Area
-  ERA and tenement boundaries



VTEM conductivity at +100m RL (AHD m)
 showing historic diamond drilling (Amax / Theseus)
 over Google Earth satellite imagery

-  Lord Brassey workings (nickel sulphide)
-  Lord Brassey Mine Fossicking Area
-  ERA and tenement boundaries

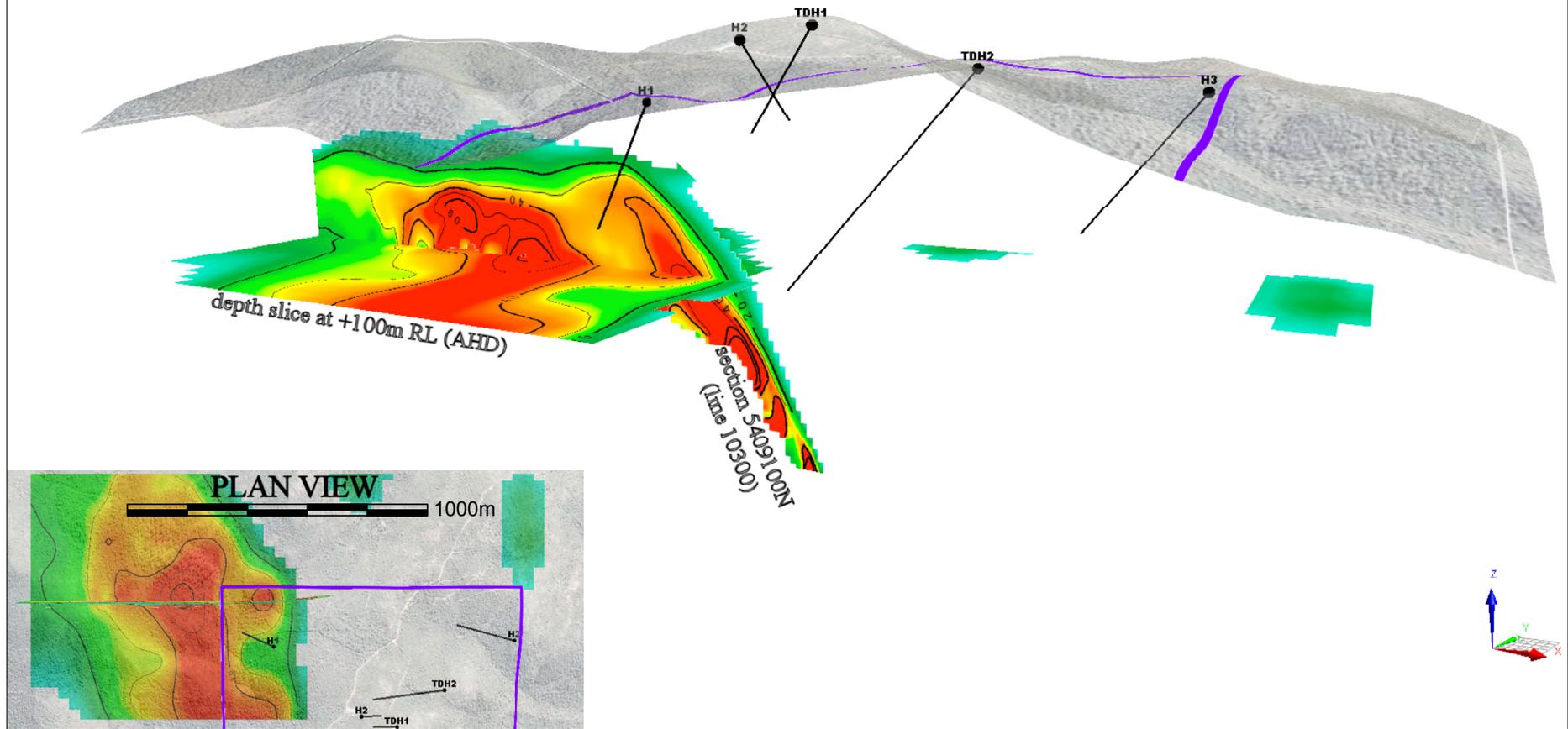
(only showing VTEM conductivity data from the Bass Metals survey)



3D perspective view of VTEM vertical conductivity sections
looking from SE to NW with Brassey Hill in the foreground

The east-west VTEM flight line locations are shown as lines draped over the ground surface. The southern three flight lines (brown) are from the Mincor survey; others (grey) are from the Bass Metals survey. Each flight line has a calculated vertical conductivity section displayed beneath it (coloured same as Figure 6). The 3rd section from the south (the first with intense red) is Flight Line 10710 which is shown in detail in Figure 9.

 Lord Brassey Mine Fossicking Area



3D perspective view of EW strip, centred on drillhole H1
looking from SE to NW

showing conductivity section 5,409,100N and horizontal depth slice at +100m RL (AHD)

Drill hole H1 was drilled into a gap in the VTEM conductivity, so has not tested the most conductive zones defined by the VTEM survey.

 Lord Brassey Mine Fossicking Area

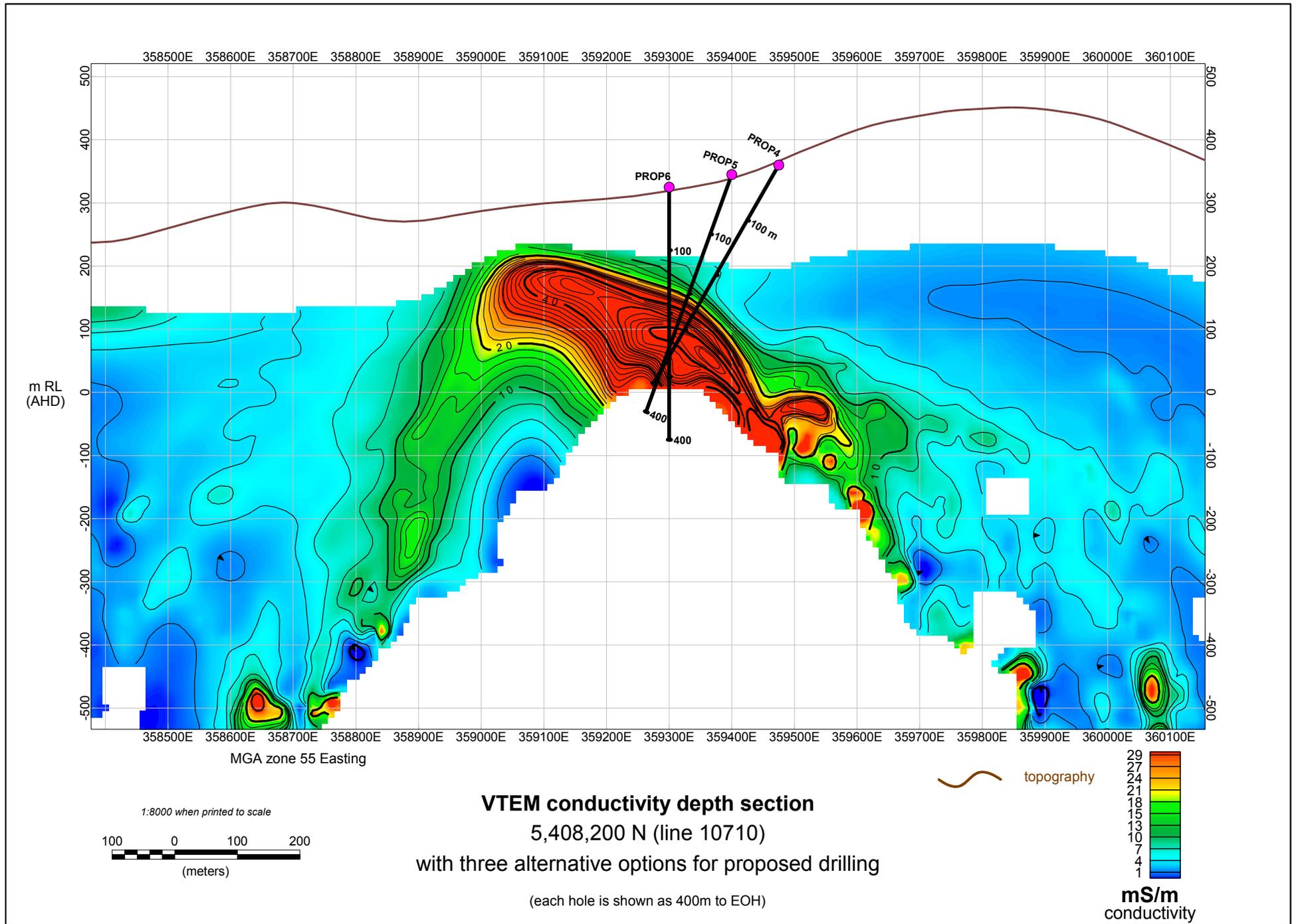


Figure 09

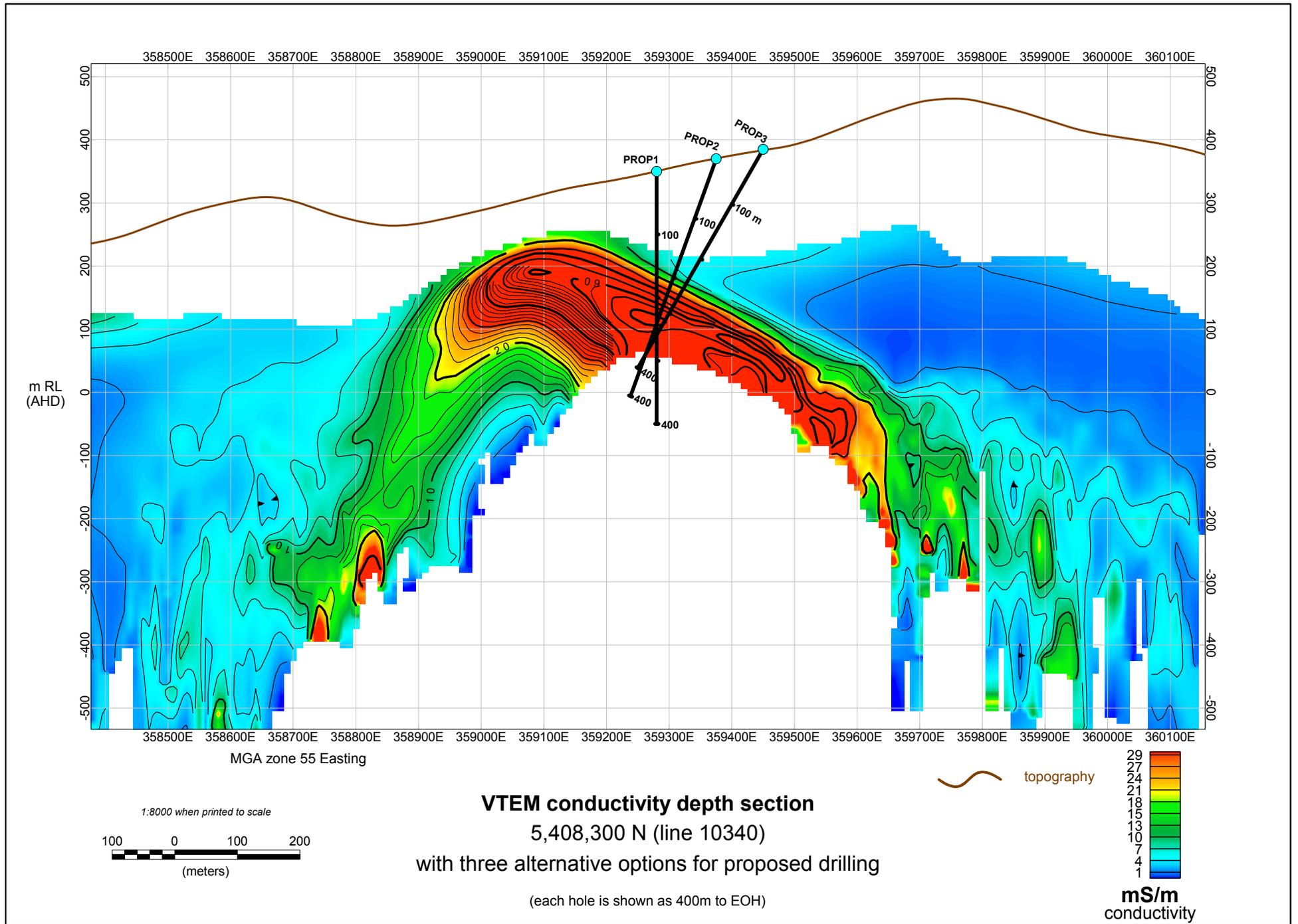
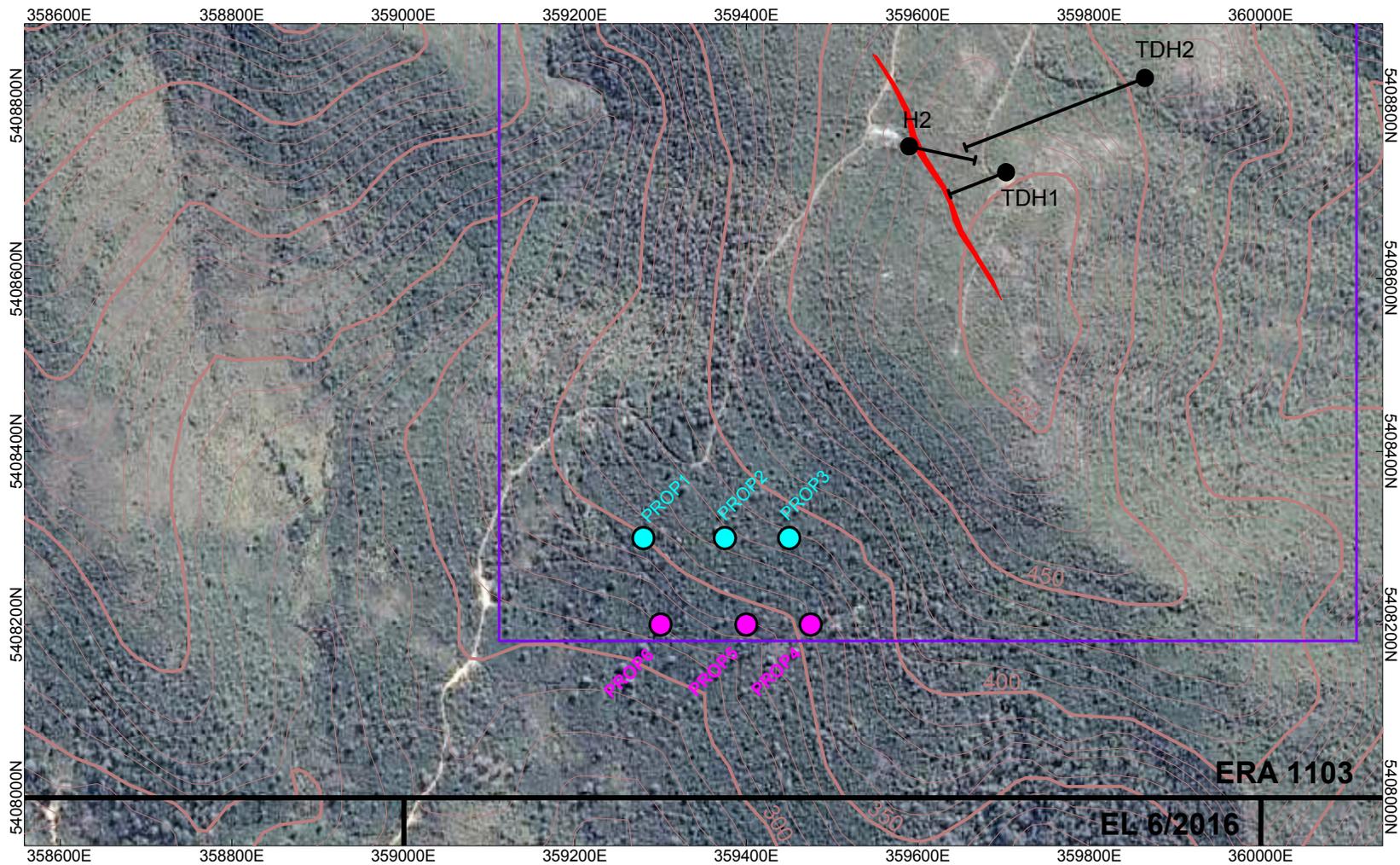


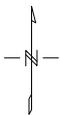
Figure 10



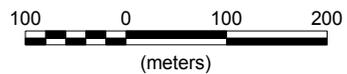
VTEM conductor - proposed alternative drill collar locations

PROP 1 and 6 are vertical
 PROP 2 and 5 are inclined 70deg west
 PROP 3 and 4 are inclined 60deg west

-  Topography contours 10m, 50m
-  Lord Brassey workings (nickel sulphide)
-  Lord Brassey Mine Fossicking Area
-  ERA and tenement boundaries



1:7500 when printed to scale



GDA94 / MGA zone 55

Figure 11