

**Ron Gregory Prospecting**  
**EL 6/2016 Brassey South Prospect**  
**BS001 Final Drilling Project Report**



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## Summary

The current configuration of EL 6/2016 Duffs Hill was acquired by Ron Gregory Prospecting to explore part of the Early-Middle Cambrian Heazlewood ultramafic-mafic Complex in the area of historic small scale nickel sulphide and silver-lead-zinc sulphide workings hosted in an association of partly serpentinised olivine-rich peridotites intruded by gabbro and dolerite dykes and veins.

A drill hole was planned to test a conductivity anomaly generated by two VTEM helicopter surveys flown by separate companies holding abutting ELs over the anomaly, in 2008. Modelling by the current explorers indicated that the target was entirely sub surface, with an orientation parallel to the historic, structurally controlled Lord Brassey nickel sulphide mine, hosted in the same geology as the EM anomaly. A successful Round 4 EDGI program co-funding grant for the proposed drill hole was confirmed in early July 2020.

DDH BS001 was completed in July 2020. The hole encountered a uniform association of partly serpentinised orthopyroxene dunite with common narrow intrusions of mainly coarse gabbro and minor fine dolerite. The hole was terminated at 250.5 metres after penetrating the centre of the conductivity anomaly as planned but having encountered no evidence of alteration or mineralisation in the core. The hole was completed with PVC casing inserted to 250 metres and the collar capped and set in cement at ground level. Access to the site has been maintained to enable further work, including a DHEM survey, aimed at explaining why BS001 was unsuccessful and whether a valid target justifying further drilling remains untested.

This report, together with the BS001 core delivered to the MRT core store at Mornington, is intended to satisfy compliance with EDGI Final Drilling Project Report requirements as per the Grant Deed received on 25th August 2020.

## Introduction

Ron Gregory Prospecting was successful in being awarded a Round 4 EDGI program co-funded drilling grant in July 2020, to drill a greenfields exploration hole on a VTEM conductivity anomaly within EL 6/2016. The Brassey South prospect was tested in July-August 2020 by DDH BS001 which drilled 250.5 metres of HQ2 core and was completed with PVC inserted for possible future DHEM. The collar was capped and cemented at ground level. All core logging and sampling is completed, and the drill site has been abandoned in a clean and tidy state.

This report, together with the BS001 core delivered to the MRT core store at Mornington, is intended to satisfy compliance with EDGI Final Drilling Project Report requirements as per the Grant Deed received on 25th August 2020.

## Co-ordinate System

Digital data supplied with this report is presented in MGA94 Zone 55 co-ordinates using the GDA94 datum.

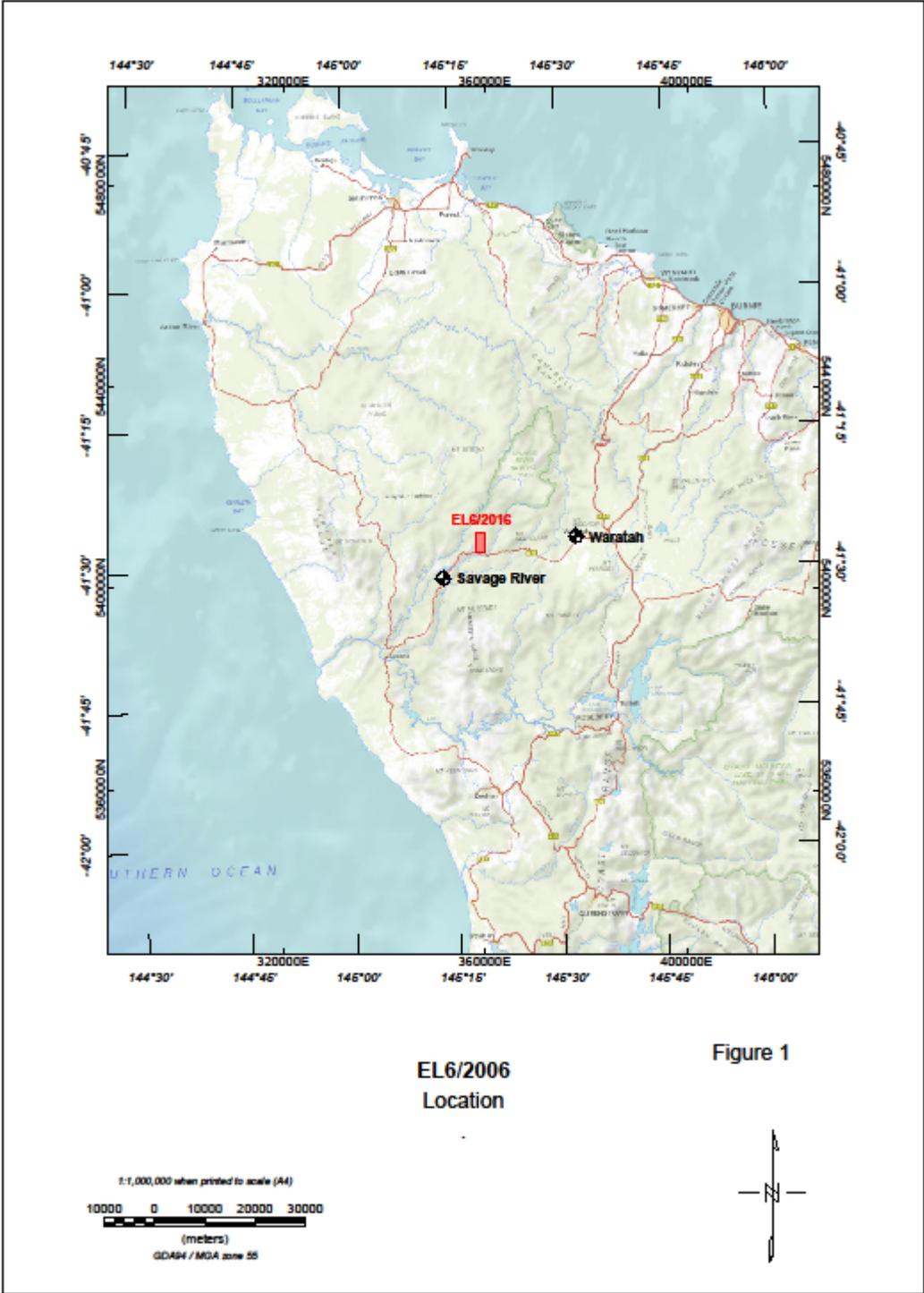
## List of Digital Files

<b>Exploration Work Type</b>	<b>Filename</b>	<b>File format</b>
<i>Report on work undertaken</i>	EL62016_202010_01_EDGI_ReportBody.pdf	pdf
<i>Drill collar location</i>	EL62016_202010_02_EDGI_SurfaceLocation.txt	txt
<i>Downhole lithology data</i>	EL62016_202010_03_EDGI_DownholeLithology.txt	txt
<i>Downhole survey data</i>	EL62016_202010_04_EDGI_DownholeSurvey.txt	txt
<i>Drill core recovery data</i>	EL62016_202010_05_EDGI_CoreRecovery.txt	txt
<i>File Verification Listing (this file)</i>	EL62016_202010_06_EDGI_FileListing.txt	txt

## **Tenure & Access**

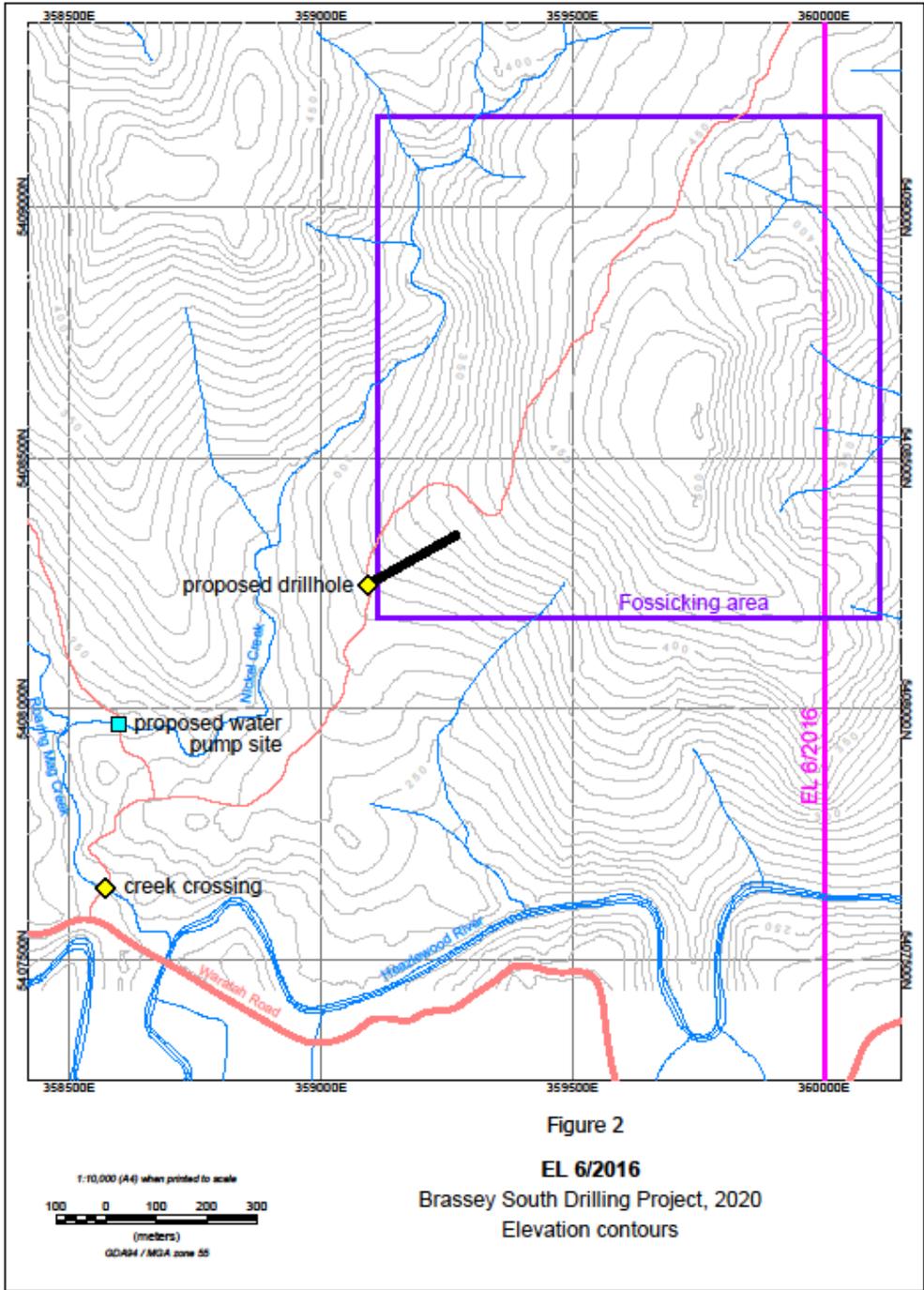
The current configuration of EL 6/2016, which was modified in 2019, is an 8 km<sup>2</sup> licence located midway between Luina and Savage River and accessed by the sealed Waratah Road (B23) which runs through the southern edge of the tenement (Figures 1 & 2). 4WD vehicle roads connect Waratah Road to the drill site and water supply site on Nickel Creek, via a log and gravel- fill bridge over Roaring Meg Creek (Figure 2). The Lord Brassey fossicking area overlies approximately 1km<sup>2</sup> of the central eastern portion of the EL (Figure 3). The bridge crossing and the 4WD roads required substantial repairs prior to drilling.

Land tenure covering the area of the BS001 drilling project is Crown Land in the category of Future Potential Production Forest (Figure 3).



EL6/2016  
Location

Figure 1



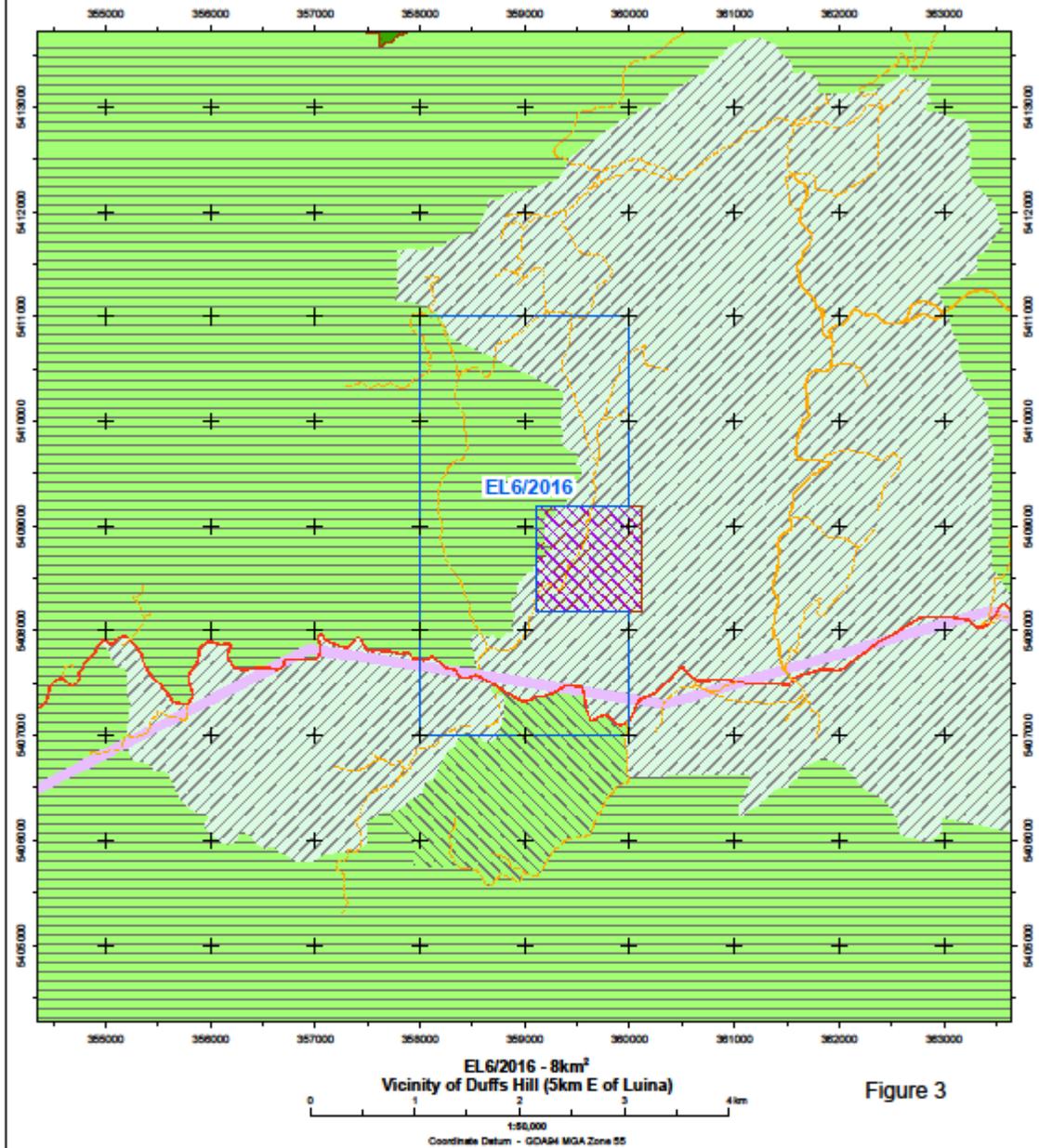


Figure 3

**Land Tenure / Special Management Areas (Guide Only)**

- |                                 |   |                        |  |
|---------------------------------|---|------------------------|--|
| Unavailable Areas               | Future Potential Production Forest (FEC)              | Game Reserve           | Future Potential Production Forest (Crown)                                   |
| Mining Lease                    | Informal Reserve (Forestry Operations) - Private Land | Historic Site          | Informal Reserve - FT Managed Land   |
| RAMSAR Site                     | Private Land  | National Park          | Permanent Timber Production Zone Land  |
| Gas Pipeline Corridor           | Aboriginal Administered Land                          | Nature Recreation Area | Authority Land   |
| Fossil Site                     | Wellington Park                                       | Nature Reserve         | Crown Land   |
| Commonwealth Land               | Conservation Area                                     | Regional Reserve       | <b>Private Reserves</b>  |
| Aurora / Hydro / Transend Lands |   | State Reserve          | Available under the MRDA but not available under administrative arrangements |
|                                 |   | Public Reserve         | Available under the MRDA   |

Note: Land tenure is derived from the LIST and other sources and may be incomplete. Not all land tenure depicted in legend may appear on the map. Relevant tenement land tenure / land management area indicated \*



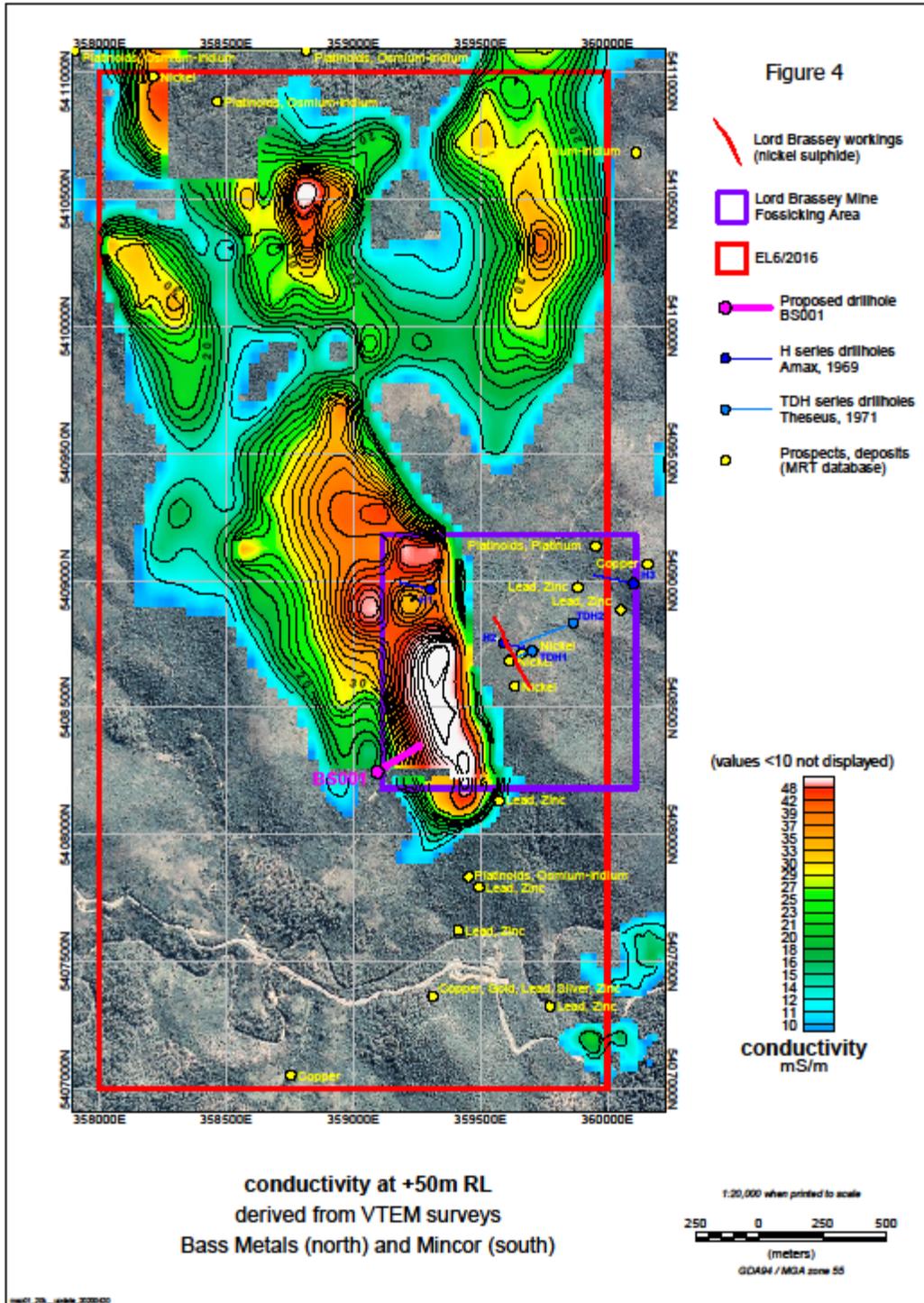
## **Exploration Philosophy**

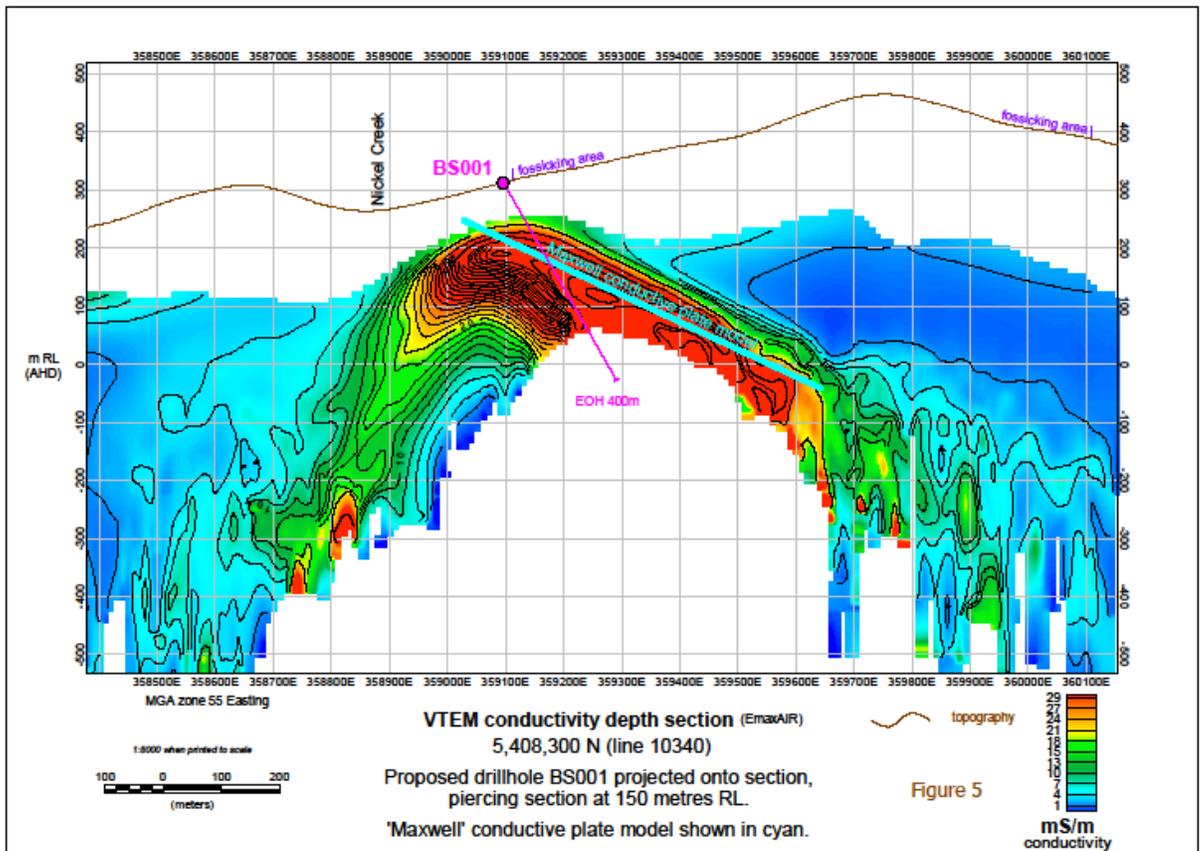
The Cambrian ophiolite complexes in western Tasmania have demonstrated significant mineralisation in a range of metals but as yet a modern economically viable ore body remains to be discovered and successfully mined. The exploration philosophy leading to drillhole BS001 was to test an anomalous conductor generated from airborne EM/magnetic surveys flown by two previous exploration companies over part of the Cambrian Heazlewood Mafic-Ultramafic Complex (Figure 4). The conductor was modelled by the EL operators and appears to be well defined and entirely sub surface (Figure 5).

At the prospect scale the area is known to be fertile, as it includes minor historic nickel sulphide and base metal sulphide shows. The base metal shows in the area are associated with quartz-carbonate vein style alteration similar to other Devonian occurrences related to the Meredith Granite in the region.

The target prospectivity concept was based mainly on analogies with Cuni/Melba Flats (nickel/copper sulphide closely related to structures controlling gabbro intrusions) and Avebury (nickel sulphide and accessory scheelite closely related to granite sourced skarns).

The project had a single objective; to determine the source of the conductivity and hopefully with a positive result intersecting an interval of ore grade mineralisation. The known outcropping geology and the predicted sub surface geology to be drilled suggested either nickel +/- copper and PGE-gold sulphide or silver-lead-zinc sulphide, with some structural control in either case, was the most likely source if the target is mineralised.





## Geology

The regional geology of EL 6/2016 is mainly covered by the Savage River digital 1:25,000 sheet, apart from a portion in the north of the EL which will be covered by the Donaldson sheet when it is completed. The most detailed coverage of the prospect area is the 1990 mapping by University of Melbourne PhD student David Peck (Figure 6).

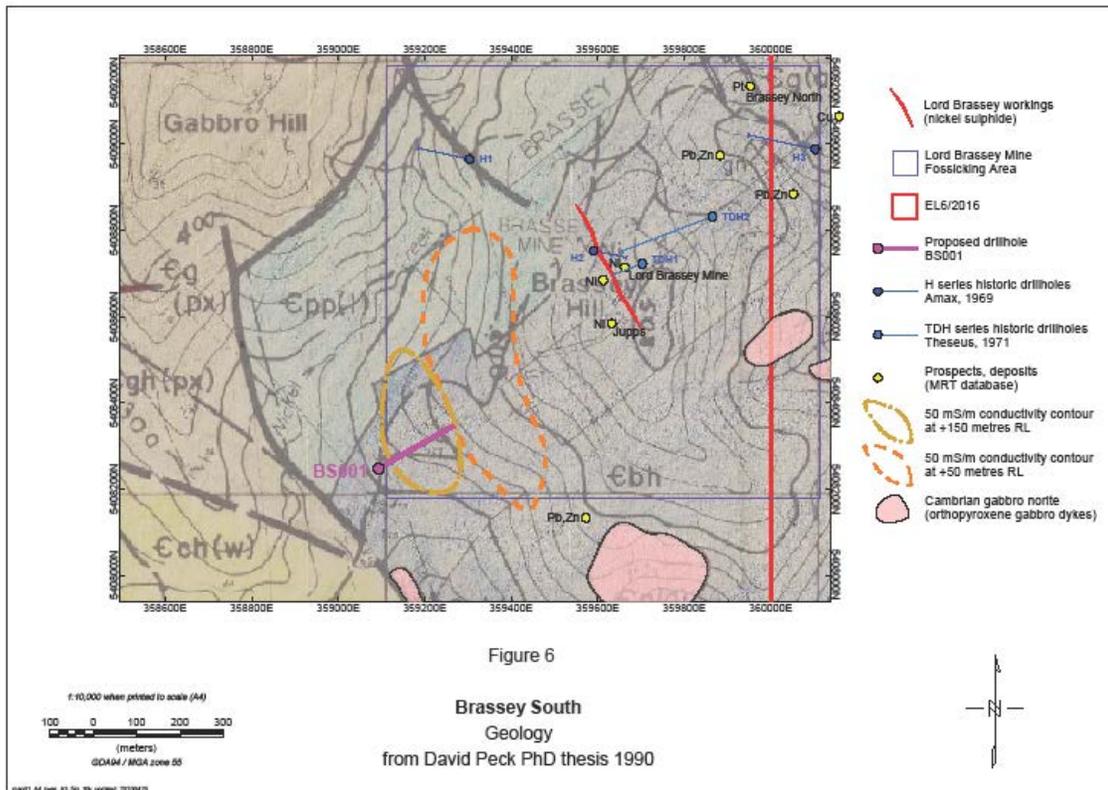
The Heazlewood Mafic-Ultramafic Complex is the most stratigraphically complete of the several structurally dismembered, Early-Middle Cambrian allochthonous ophiolite fault blocks outcropping in the western half of Tasmania. The stratigraphy broadly youngs from basal dunites in the northwest (Nineteen Mile Creek area), through a central complex of layered peridotites intruded with gabbro and dolerite dykes, to extrusive basalts including

pillow structures in the southeast (Mt Cleveland Road and Jasper areas). Figures 3 and 4 show the regional and local setting of the Brassey South project, hosted in a mainly harzburgite+gabbro dyke association within the layered peridotite central part of the Complex.

Metals are common within the Heazlewood rocks, but they predominantly occur as either silicates (nickel in olivine and pyroxene) or as native metals (osmiridium alloys, gold, and minor native copper). Sulphide mineralisation discovered to date is restricted to; minor fault hosted nickel sulphide at Lord Brassey and several small silver-lead-zinc +/- copper vein-style shows.

The prospect geology consists of a suite of partly serpentinised peridotites of mainly harzburgite, dunite and lherzolite composition, intruded by a cluster of gabbro dykes. Both the dykes and the EM conductor appear to be fault controlled. The mapped fault-bounded association of gabbro dykes and sills intruding the Brassey Hill Harzburgite (C<sub>bh</sub> and C<sub>g(d)</sub> on Figure 6) contains the only significant nickel sulphide occurrence in the EL and several base metal veins indicating potential underlying granite. Figure 6 also shows that the plan view long axis of the current target is parallel to the NW-SE strike of the Lord Brassey structure and also to the portion of "Nickel Creek Fault" which would be intersected at surface by an up-dip projection of the conductor, if it did reach the surface.

The target had not been previously drilled and has no known surface expression, but the prospective geology includes several small nickel and lead-zinc historic surface workings. The base metal shows include wall rock and vein quartz-carbonate alteration haloes typical of prospects associated with the Meredith Granite in the wider region.



## Previous Exploration

Between the 1870s and the 1930s, prospectors and miners successfully worked alluvial and eluvial osmiridium sourced from chromitite lenses in the Nineteen Mile Creek Dunite, and discovered sub economic occurrences of nickel sulphide and silver-lead-zinc sulphide in the project area, as discussed above. The Brassey South drill target is derived entirely from two VTEM surveys conducted by Bass Metals and Mincor in 2008. The coverage joins across the southern part of the anomaly, close to the proposed collar site (Figures 4 and 5).

No exploration has been undertaken in the prospect area since, and modern era company exploration prior to the VTEM surveys has not helped much with our prospect generation. Soil surveys conducted by Metals Ex (the Bond Corporation version) in the 1980s and by Bass Metals in the 2000s produced no convincing target or indicator metal anomalies on the current project area. Five previous diamond drill holes exist on the prospect area

(Figures 4, 5 and 6); three 1969 Amax holes and two 1971 Theseus holes. Four of these holes drilled under known mineralisation at Lord Brassey and a base metal vein further northeast. None encountered significant mineralisation. Amax hole H1 was drilled on an IP anomaly, which coincides with a portion of the conductivity ridge detected by the later Bass Metals VTEM survey (Figure 4). H1 did not intersect significant mineralisation but it is about 700m NNW of the BS001 hole, and well outside the peak conductivity target.

## **Drilling Results**

BS001 was drilled in July 2020, by E Drill with their Morooka- carried LF70 rig (Cover Page Photo). The hole was collared at 359091mE/5408250mN on outcrop at an elevation of approximately 310 metres (asl) and drilled on a designed azimuth of 060 MGA, at a dip of -55, entirely with HQ2 core to 250.5m EOH depth. Magnetic interference from the magnetite content of the Heazlewood geology required a GPS azimuth line to be marked out for rig alignment and down-hole surveys using an Axis gyro tool. The azimuth swung 4.8 degrees to the south and the dip was -55.2 at EOH. No problems were encountered in the drilling operation and core recovery was very good – 98.9% overall. Survey and core recovery data, and geological logs (Appendix 1), core tray photos (Appendix 2) and lithology log data (Appendix 3) are attached to this report as zipped digital files.

The hole intersected a uniform sequence of serpentinised dunite, grading in part to orthopyroxene dunite, intruded by minor gabbro and lesser fine dolerite veins and probable dykes. The host dunite, which comprises >90% of the core, is heavily structured with consistent fine white irregular undulose veining and lesser planar fracture-fill veins, up to 5cm or so width, filled with the same soft white, slightly talcose, non-carbonate serpentine mineral. Apart from a minor increase in the intensity of fine veinlets from around 181 metres, no down hole trends in the dunite were observed. Pyroxene content, mainly the bronzite variety, varies in places but is consistently minor. Disseminated black spinel (assumed chromite) 1-2 mm crystals comprise 1-3% of the rock texture. The dunite is entirely magnetic and locally contains zones of visible more pervasive magnetite which give a strong hand magnet response.

From 181m down hole there is a minor increase in the frequency of mafic dykes, coinciding with some minor faults and stockwork zones which appear to control both the thickest gabbro dykes and the first appearance of fine dolerite intrusions. The mafic intrusions are non-magnetic, denser, harder, and less serpentinised than the host dunite, presumably due to the lack of olivine. The dolerites are very fine grained and especially dense. They include patchy serpentinisation (perhaps after coarse pyroxene?), are texturally difficult to read and their identification is tentative. The gabbros have coherent textures, vary in crystal size from fine-medium to pegmatitic and appear to consist entirely of dark green-black and bronze pyroxenes and white plagioclase, partly altered to garnet.

In summary, logging recognised four main lithologies based on a combination of rock type and structure (see Photos 1-4 below).

No evidence of alteration or mineralisation was observed, and therefore nothing which could explain the conductivity anomaly, despite drilling through the centre of the target according to the model (Figure 7). The decrease in magnetic intensity and the fault structure-controlled dolerite-gabbro dykes predicted from the surface geology (Figure 6) are consistent with the target modelling and were expected within the 150-250m downhole interval. Given the lack of encouragement regarding mineralisation (not a single bleb of sulphide was logged) the drilling was terminated at 250.5m and 250 metres of capped 40mm ID PVC was installed inside the HQ pipe after the bit was removed and the drill string re-run into bottom hole.



**Photo 1** Serpentinised dunite with minor white clay veinlets. BS001 @191.3m.



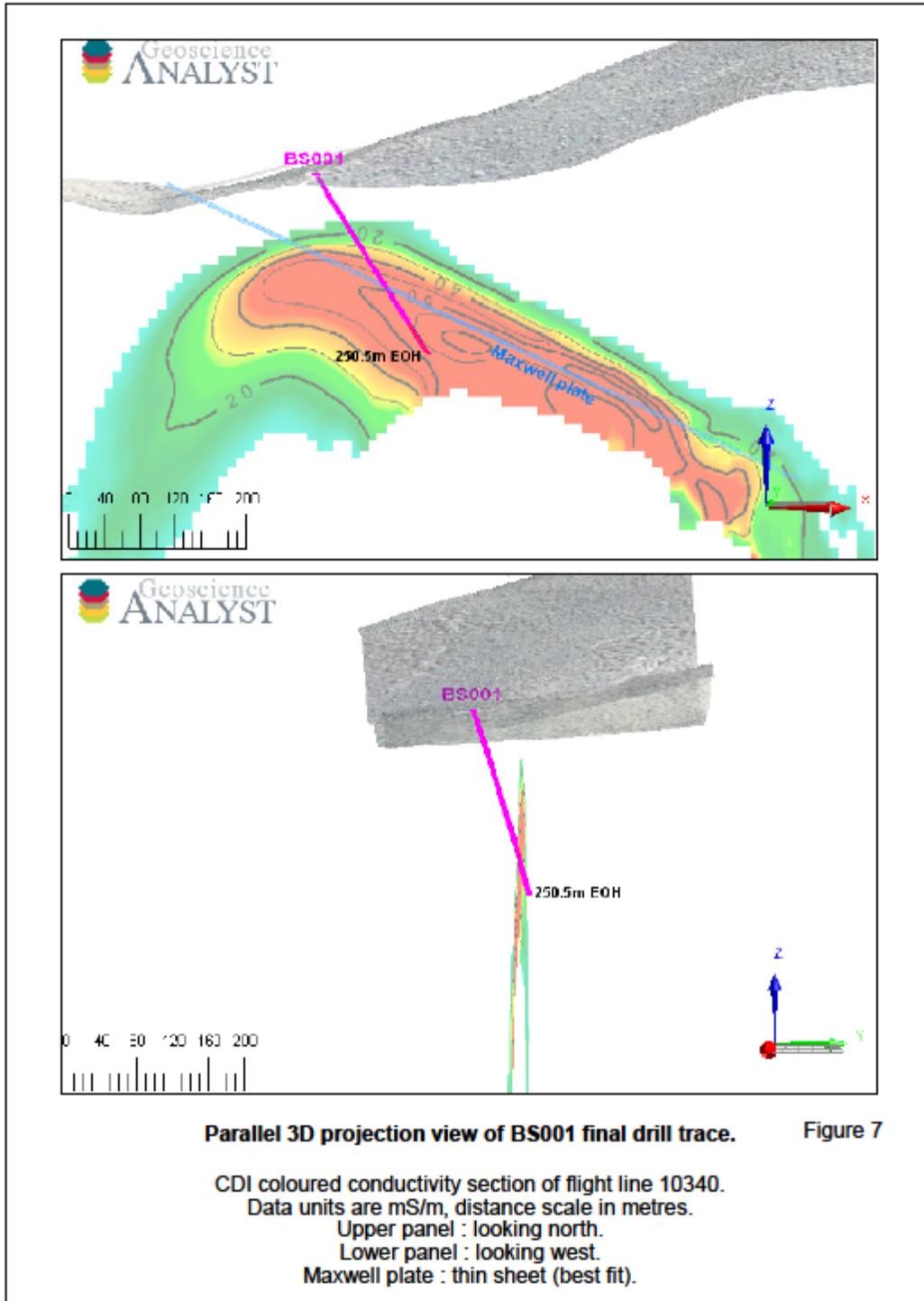
**Photo 2** Serpentinised dunite with zone of intense white clay veinlet stockwork orientated sub parallel to the drill core. BS001 @ 221.3m.



**Photo 3** Fine-medium grained gabbro, part of a 3 metre wide intrusion with a probable fault bounded bottom contact. The white feldspar has been partly altered to garnet. BS001 @ 183.5m.



**Photo 4** Fine dolerite with blotches of serpentinite. The rock is hard, dense, and nonmagnetic in contrast to the host serpentinite, and is fault bounded at the bottom contact. BS001 @ 213m.



## Conclusions & Future Work

BS001 did not intersect any visual evidence of alteration or mineralisation, so the modeled conductor has not been explained. On present information, and assuming the VTEM data are reliable, there appears to be two plausible explanations.

1. The model has not accurately predicted the position of the conductor source and the source itself does not have a large halo of conductive geology, as was indicated by the model.
2. The conductor is due to an unmineralised structural trend which has no obvious signature in the rocks drilled.

Several half core samples representing the variation in lithologies identified by logging have been taken to the geophysics laboratory at UTas, where a desk top conductivity meter operated by Dr Michael Roach exists. At the time of writing the instrument requires a software installment, so measurements of the core conductivity have been delayed. Results will be included in the next EL Annual Report.

A wire line DHEM survey is required to test the possibility that the conductivity source is off-hole and was missed by BS001. If the VTEM response was sourced from a structurally-confined sulphide body with very little wall rock alteration, such as a larger equivalent to the Lord Brassey occurrence, that is possible. The drill hole was completed with 250 metres of 40mm ID PVC inserted and capped, to allow for a DHEM survey. Permitting is required to establish a cut line box grid around the collar site, which would in part impinge on the Lord Brassey fossicking area. Preliminary enquiries with MRT indicate that permitting should be possible.

## Environmental Considerations

The drill site and the two stage water pump sites have been left clean and tidy and all equipment, including water lines and Portaloo have been removed. The drill hole was completed with capped PVC casing and the collar preserved just above ground level in a concrete plinth (Photo 5). The bridge over Roaring Meg Creek (Photo 6) and the vehicle access road to the drill pad and water source in Nickel Creek have been retained unrehabilitated and in good condition, at least for the time being, for the possibility of further exploration.

It is recognised that a DHEM survey in BS001 will require additional permitting to cut a loop within the Lord Brassey fossicking area and to increase the permitted number of threatened plants (*M. serpentinum* and *E. glabella*) plants which may be impacted.



**Photo 5** BS001 Completed drill collar



**Photo 6** Bridge crossing-Roaring Meg Creek at start of access road to drill pad.

## **Expenditure & EDGI Compliance**

Total expenditure for the BS001 campaign includes the cost of bridge construction over Roaring Meg Creek, earthworks to upgrade the vehicle access, drill pad and sump construction, botanical survey, and geological and core processing costs.

These will be documented in the next EL Annual Report and expenditure declaration for the current licence year.

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