Review of the Hellyer-Que River Geological Data and Exploration Opportunities

Confidential Report to Bass Metals Ltd.

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JIGSAW GEOSCIENCE PTY LTD

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Executive Summary

Jigsaw Geoscience undertook a review of the geological datasets for the Que River-Hellyer project for Bass Metals to validate or re-interpret the existing geological maps and models for the purpose of closing any gaps that may have previously existed, and thereby improve the potential for exploration success. This review was undertaken with the knowledge that a separate study is to follow to construct an independent three-dimensional model that will integrate the alteration modelling that had been completed by Dr Scott Halley. One of the key objectives was to test the concepts and interpretations behind the maps and previous 3-D models by returning to the original datasets, and where necessary acquire additional drillhole and mapping data to resolve questions that arose during the review. The quality and consistency of the original geological data collected enabled the review to be carried out without the need to undertake a campaign of drill-hole relogging. This drill-hole logging data, the original 1:2,500 scale outcrop and trench mapping, petrography reports, soil and drillhole sample geochemistry and limited geophysics were used to validate and modify the interpreted solid geology maps and 3-D models as appropriate.

The review largely confirmed that the quality of the datasets and the interpretations is satisfactory, and did not result in any fundamental changes to the interpretations that had been previously proposed. The geology west and east of the Que River Mine has been reinterpreted with more extensive mixed sequence with dacite identified. The mixed sequence and overlying Hellyer Basalt east of the Que River mine is also linked to the southern side of the Switchback area with no Lower Basalt present as previously proposed. The only Lower Basalt identified in the area is south and east of the Que Fault.

It was observed that the central corridor hosting the Mt Charter deposit, Que River mine and Hellyer mine, along with the D-Zone is characterised by a higher degree of disrupted stratigraphy, faulting and marks the termination of large-scale depositional facies including the mafic-dominated mixed sequence in the Switchback area, the abrupt thickening of the felsic volcanic rocks east of the Mt Charter deposit and generally simple and less dissected stratigraphy west of this corridor. This lineament reflects early basin architecture during the deposition and modification of the host stratigraphy that most likely was instrumental in the focus of circulating hydrothermal fluids responsible for the mineralisation in the district. Areas on the project that have complexity in the stratigraphy below the Hellyer Basalt are considered to be more prospective on the basis of having the essential fluid flow architecture.

The reinterpreted solid geology map and geological contacts or structures modelled in Leapfrog are provided with this report to Bass Metals for use in further modelling and targeting.

Introduction

Objectives and Methodology

Carl Young and Bryan Krapež of Jigsaw Geoscience were engaged by Bass Metals Ltd to undertake a review of the geology of the Que River-Hellyer project with the objective of identifying (i) possible gaps in the datasets that may limit the potential for exploration success, (ii) gaps in the understanding of the geology in the district and prospects, and (iii) improvements that could be made in exploration methodology and targeting. The review involved a preliminary desktop analysis of the datasets provided by Bass Metals followed by a two week field visit to the Hellyer mine site to undertake a more detailed investigation. Following the field visit, data were synthesized to re-interpret the geological map and three-dimensional architecture of the Que River-Hellyer district. The reinterpretation provides the ability to fulfil the objectives, and provide a robust geological framework required to effectively analyse the modelled alteration in the district for the purpose of identifying prospective exploration and mining targets.

The focus of this study was initially guided by interpretations made by Dr Scott Halley in a report submitted to Bass Metals in 2009, covering the lithogeochemistry of the stratigraphy and modelling of the alteration mineralogy with the geochemical and multispectral data of the district. In conjunction with those data, Jigsaw investigated the geological maps and three-dimensional models produced for the Que River-Hellyer district in context of the available drill-hole, outcrop maps and geochemical datasets. A significant amount of multi-element geochemical data has been acquired since the Geoinformatics review of the project, adding additional constraints on the geological interpretation. Several areas appeared to have differing geological interpretations or interpretations that are inconsistent with some of the datasets. Jigsaw sought to re-interpret or validate prior interpretations through the integration of all of the available data and devise an internally consistent geological model.

The datasets used by Jigsaw for the review include:

- Aberfoyle Exploration geological maps in GIS format (“HC_ABEX_” series)
- A revised geological map produced by Geoinformatics (“HC_GXL_interp” series)
- Scanned copies of Aberfoyle Exploration 1:2500 surface outcrop geological maps
- Hellyer_Database_Validated.accdb (Microsoft ™ Access drillhole database) containing collar, downhole survey, and logged geology data but no assay data.
- Drill-hole ICP geochemical datasets from the Bass Metals 2009 campaign and data previously acquired by Aberfoyle. These datasets had been interpreted for lithogeochemical rock type and alteration assemblages by Scott Halley using IoGAS.
- Three-dimensional wireframes of the main geological units for the Hellyer, Que-River and the district scale project areas created by Geoinformatics (converted from GoCAD format)

- Soil geochemical datasets from Aberfoyle Exploration and Bass Metals (includes multi-element data); levelled and imaged by Geoinformatics
- Reprocessed aeromagnetic data for the district
- Reprocessed IP data
- Regional scale gravity data imaged
- Mines and Resources Tasmania 1:25,000 scale mapping

The review involved systematic checking for consistency between the datasets, to validate existing geological interpretations represented in the GIS geological map and the three-dimensional volumes for some of the stratigraphic units. The 1:2500 Aberfoyle outcrop maps and the original graphic geological logs for many drill-holes were consulted to re-assess the geological map and model. In particular, graphic logs were used to validate the geology for many drill-holes in the digital database. During this process it was found that the geology in some graphic drill-hole logs differs to the geology in the digital drill-hole database. In some areas, the transcription of original data appears to have been driven by the expected drill-hole geology based on a specific geological model. The lithogeochemistry was also used extensively to validate the digital drill-hole geology and constrain the interpretations of the stratigraphic architecture. Where available, drill core was examined to check discrepancies, but it was found that many critical drill cores and their logs were no longer available. Generally, most of the geophysical datasets for the Que River-Hellyer project do not contribute a significant level of information in addition to that which is drawn from the other data sources available. The aeromagnetic data broadly agrees with the gross geological architecture modelled for the district from other geological datasets, but is not that useful for delineating the smaller scale structure in the district.

Data Analysis

An additional rock type field named “New Rock” was added to the supplied digital drill-hole database. This field has simplified rock type codes designed to reduce the number of lithological descriptors for ease of displaying in a new Leapfrog Project. The detail in the drill-hole database was maintained in the Leapfrog project to assist in refining interpretations. The table with the translated lithology codes is qry_DHlithology.xlsx.

The original IoGAS file for the Bass Metals 2009 dataset provided by Scott Halley was reviewed to determine whether additional sub-units of the original lithogeochemical groupings could be discriminated. The only minor refinement to the lithogeochemical classification scheme was the definition of a second rhyolite lithotype based on high values of the high field-strength elements (Zr, Th, Ti) relative to vanadium. This rhyolite generally corresponds to the Southwell sub group above the Que River Shale and some samples from the dacite units in the mixed sequence. No other definitive units were identified from this dataset.

The drill-hole multi-element geochemistry acquired by Aberfoyle does not have the same suite of elements as the data collected by Bass Metals, which limits the capacity to discriminate the lithologies beyond generic lithotypes such as basalt, andesite, dacite etc. This dataset was not used as extensively in support of the re-interpretation of the drill-hole geology.

As shown by Scott Halley (2009) the multi-element geochemistry of the Aberfoyle and Bass Metal soil samples are an effective means of determining the underlying rock types, based on the high degree of correlation between the geology defined by mapping and the drill-hole data. Consequently the soil samples were used to resolve surface geology in some areas of contention; however soil sample results alone cannot be used to differentiate stratigraphic units, such as the mixed sequence and the Hellyer Basalt (Pillowed Lava Sheets or 'PLS' code).

The graphic geological logs, stored at the Hellyer mine site, were used to verify original rock types, textures and composition, as it was found that the transcribed lithology and interpreted formation for some drill-hole sections were either inconsistent with the original logs or may have more than one possible interpretation. Scans were made of a selection of drill-holes for demonstrative purposes, whereas much of the drill-hole assessment was captured onto working plans and sections during the synthesis.

The interpretation of the stratigraphic architecture at the Que River-Hellyer district was made in accordance with the stratigraphic scheme shown in Figure 1. The presence of basaltic rocks in the footwall feldspar-phyric sequence (AFP) poses some problems in assigning the contact between the AFP and the lower basalt. It is concluded that either there is more basalt in the AFP than what is suggested by the summary stratigraphic scheme, or the Lower Basalt and AFP interfinger in various parts of the district.

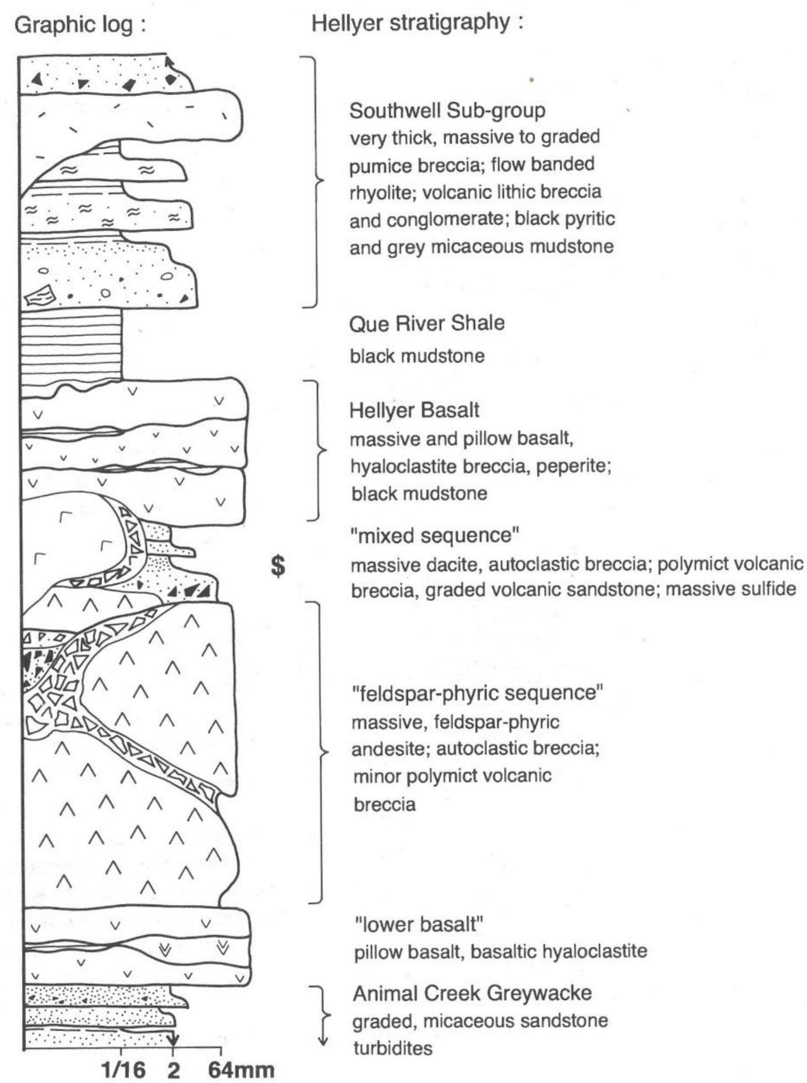

Figure 1 Summary of the stratigraphy of the Que River-Hellyer district (source: XXX).

REVISED GEOLOGICAL MODEL

OVERVIEW

Jigsaw originally set out to construct a series of cross sections to document the interpreted geological architecture supported by the revised geological map. However, during the exercise it was found that three-dimensional modelling of unit boundaries and structures provided greater clarity and internal consistency of the architecture that would serve to facilitate the construction of a robust three-dimensional geological model to be undertaken by an additional geological consultancy. This strategy was not part of the outlined plan for the study, however it was recognised that the final product would be of greater benefit albeit at the cost of a later delivery than anticipated.

The revised base geology map included with this review is modified from the map produced by Geoinformatics, and the Aberfoyle Exploration map on which the former map was largely based. As previously discussed the refinement of the geological units was constrained by the 1:2,500 scale outcrop maps, surface geochemistry, drillhole geology and lithogeochemistry, and to a lesser degree geophysical datasets. The quality of the original outcrop and trenching mapping, and graphical drill-hole logging afforded Jigsaw the ability to assess the geological maps and models without the need to undertake a comprehensive drill-hole relogging program. One locality in the Switchback area was inspected for the surface geology, however without the benefit of fresh cut-lines, outcrop mapping is difficult or impractical. A couple of drill-hole cores were reviewed to verify the graphical geological logs and to investigate a key area west of Que River Mine. It was recognised that the quality of the previous logging could not, in general, be improved upon, nor would it better achieve the objectives set for the review.

The 3D surfaces created by Geoinformatics that were found to be consistent with the reinterpreted geology were included into the Jigsaw Leapfrog model. Geoinformatics created three GoCAD models for the Hellyer ("Hellyer_mine_model - HC_GXL_"), Que Mine ("Que_mine_3d_geology_models - HC_GXL_") and the district scale ("3_D_SOLID_GEOLOGY_MODELS – HC_GXL_SOLID_"). These GoCAD projects were imported into Leapfrog and the individual surfaces reviewed. The attributes and representivity with regards to the reinterpreted geology are given under the project area reviews below, and summarised in Appendix 2. The surfaces created by Jigsaw are denoted by the prefix "JGS_". Most of these surfaces were generated from digitised strings constrained in 3-D space on multiple cross sectional views. These surfaces are considered preliminary and have not been refined to the typical final product standard as it is understood a separate 3D model is to be constructed by an independent consultant. Jigsaw recommends these surfaces are used as a guide and reference to the strings from which they were produced is advised to determine the limits of accuracy for these surfaces. The revised geological map is provided as a GIS dataset, enclosed in Appendix 1. The map together with the areas discussed in the report are shown in Figure 2.

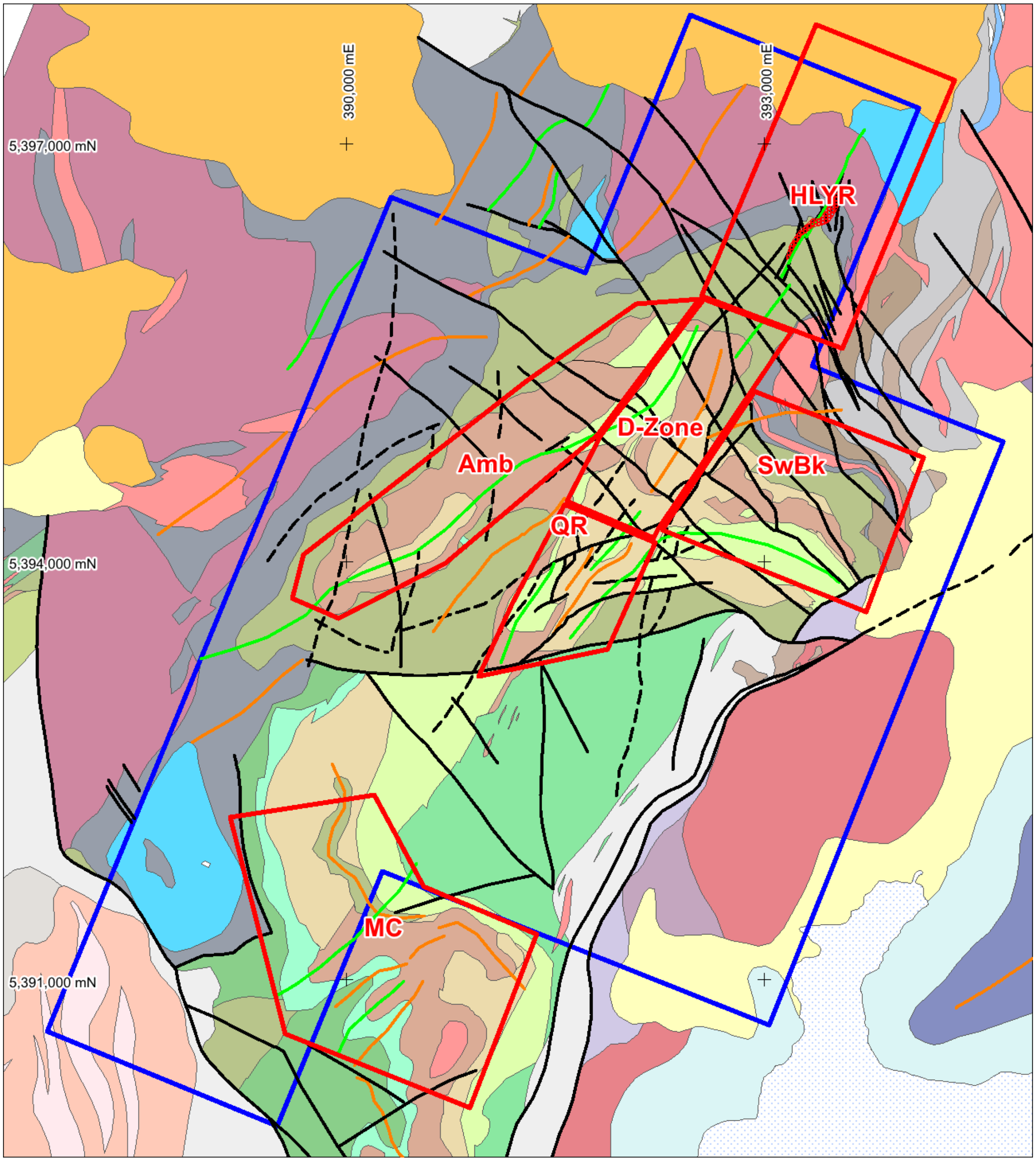

Figure 2 Revised solid geology map of the Que River- Hellyer district, modified from the Aberfoyle and Geoinformatics maps. The red polygons define the approximate limits of the areas discussed in the report; Amb- Ameoba, D-Zone, HLYR-Hellyer, MC- Mt Charter, QR – Que River, SwBk – Switchback. Green lines define anticline axes, orange lines syncline axes. The blue polygon defines the limits of the 1:2,500 scale maps available for the review. The full version of this map is provided in Appendix 1.

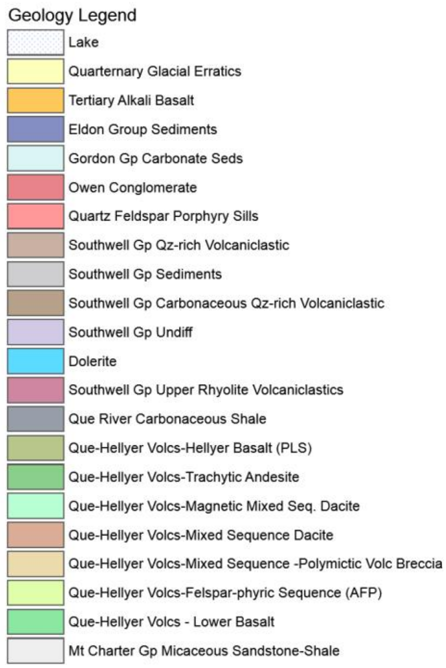

Figure 3 Geology legend for Figure 2.

HELLYER MINE AREA

Generally the geology for the Hellyer area on the previous maps and model was found to be consistent with the data reviewed. The base-metal sulphide accumulation is hosted in the Hellyer Basalt (pillowed lava sheet basalt or 'PLS') and the underlying feldspar phyric andesite package (Figure 5 -Figure 8). The sulphide ore body is partly strata-conformable with a disconformable stringer envelope zone centred about the Jack Fault, which has been shown by previous structural analyses to have sinistrally offset the orebody (Windh et al, 1992). Generally the contact between the Hellyer Basalt and the underlying footwall feldspar-phyric andesite (AFP) is well defined by the logging, although in some areas the intense alteration obscures this boundary.

The contact between the lower basalt and the feldspar-phyric andesite is not well-defined from the digital drill-hole geological data, and only a couple of drill-holes with lithogeochemical samples show the transition from andesite to basalt (e.g. Figure 6). The lithogeochemical drill-hole samples also show a minor amount of dacite in associated with the lower basalt. Consequently, the contact between the Lower Basalt and the AFP was not modelled because of the uncertainty in its position.

It was noted that in some of the graphical drill-hole logs, and from the limited lithogeochemical samples for drill-hole intersections beneath the Hellyer ore body, that the AFP includes a variable amount of dacite. South of the Hellyer ore body, the character of the AFP changes with a significant amount of dacite associated with andesite at the equivalent stratigraphic position of the AFP under Hellyer. This is discussed in more detail in the section on D-Zone.

In the deep northern parts of Hellyer, the footwall to the Hellyer Basalt comprises a combination of andesite, Cr-rich basalt and dacite which is akin to the Mixed Sequence elsewhere in the district (Figure 8). In most of Hellyer, there is no evidence of a Mixed Sequence horizon between the AFP and Hellyer Basalt. There is no reason to believe this transition should reduce the likelihood of the Hellyer ore system continuing down-plunge, as is suggested by the sustained alteration intensity as detailed by Halley (2013).

To the west of Hellyer, the few deep drill-holes HL0541, HL0953, HL0947 and MAC38 have thick (+100 m) intersections of dacite recorded in the geological logging and lithogeochemistry at the stratigraphic position below the PLS and above the AFP. The pattern of increasing thickness and consistency of the dacite stratigraphy west of Hellyer is replicated in the area west of Que River Mine (Ameoba zone). It is clear from the existing geological maps, models and prior studies that most of the mineralisation in the Que River-Hellyer district is developed proximal to the stratigraphic horizon between the Hellyer basalt (PLS) and the footwall andesite (AFP), which in a large proportion of the district is marked by the mixed sequence with variable amounts of dacite. This transition in the dacite succession thickness and volcanic facies from west to east across the north-northwest corridor that links the Que Mine to Hellyer is likely to reflect the combined riftstructure and depositional architectures.

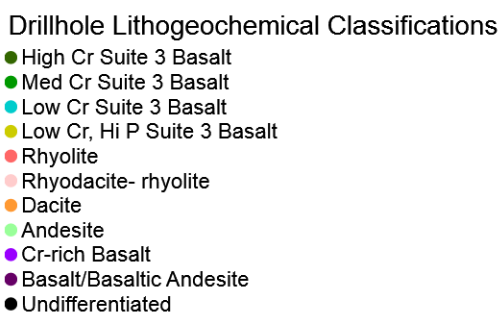

Figure 4 Lithogeochemical classification scheme used in diagrams included in this report.

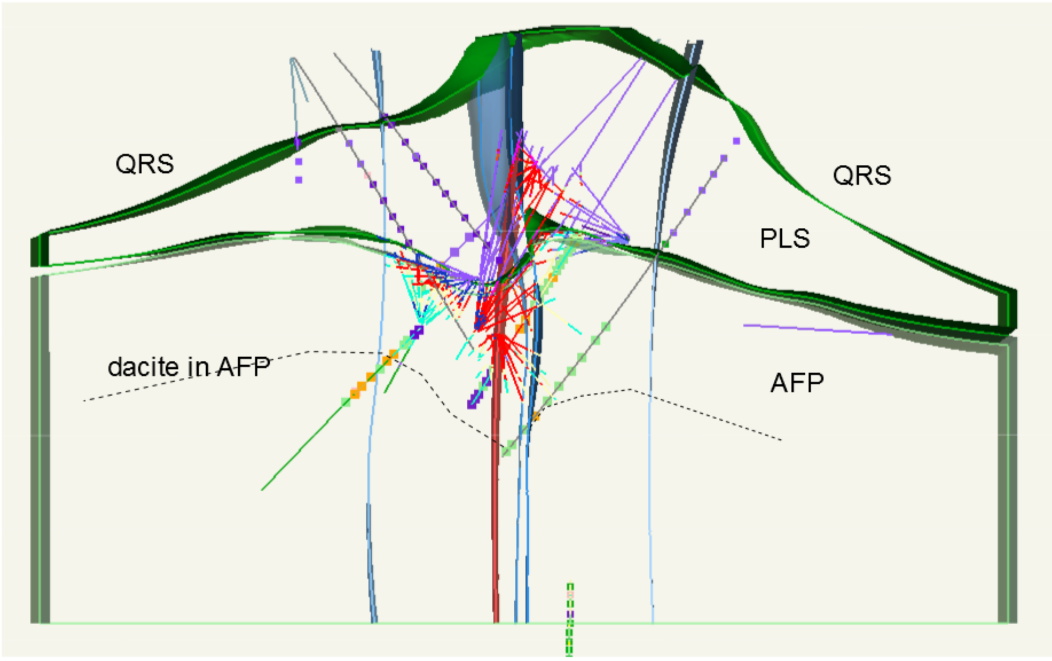

Figure 5. Cross section through Hellyer roughly centred on 393360, 5396452. Geoinformatics surfaces for the Hellyer Basalt (PLS) and footwall feldspar phyric andesite (AFP) shown with drill-holes shaded for summary lithology and points shaded for lithogeochemical classification. View window is 50m wide looking towards 023 bearing.

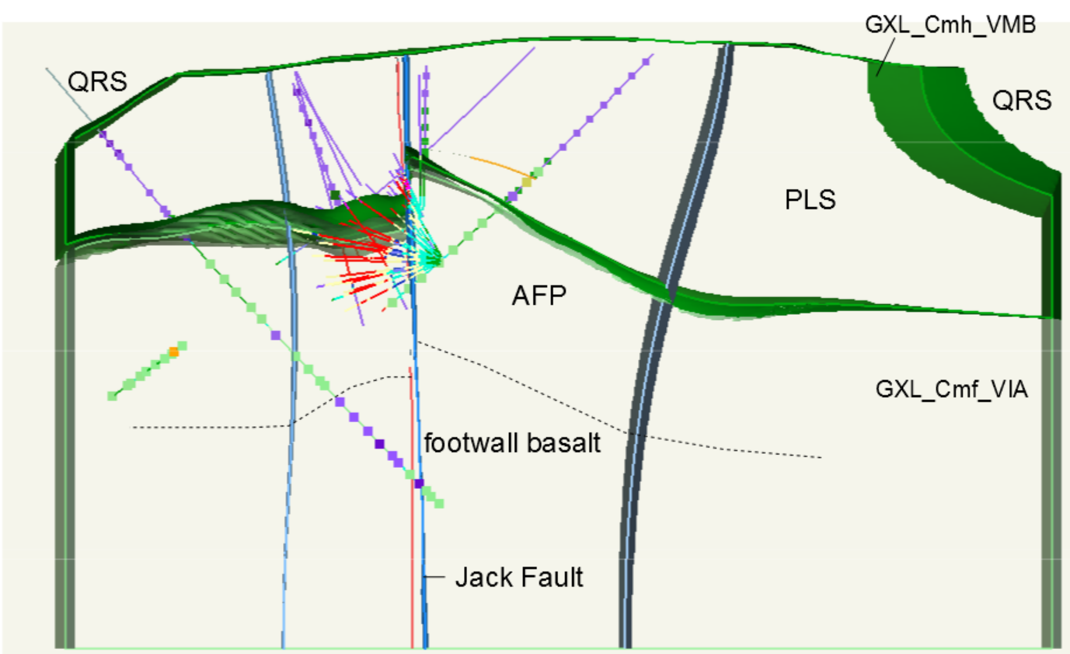

Figure 6 Cross section through Hellyer centred on 393338E, 5396189N. The footwall basalt defined by the lithogeochemical classification is in contrast to the logged andesite. Geoinformatics surfaces for the Hellyer Basalt (GXL_Cmh_VMB) and footwall feldspar phyric andesite (GXL_Cmf_VIA) shown with drill-holes shaded for summary lithology and points shaded for

lithogeochemical classification. PLS – pillowed lava sheet basalt; AFP – feldspar phyric andesite. View window is 50m wide looking towards 023 bearing.

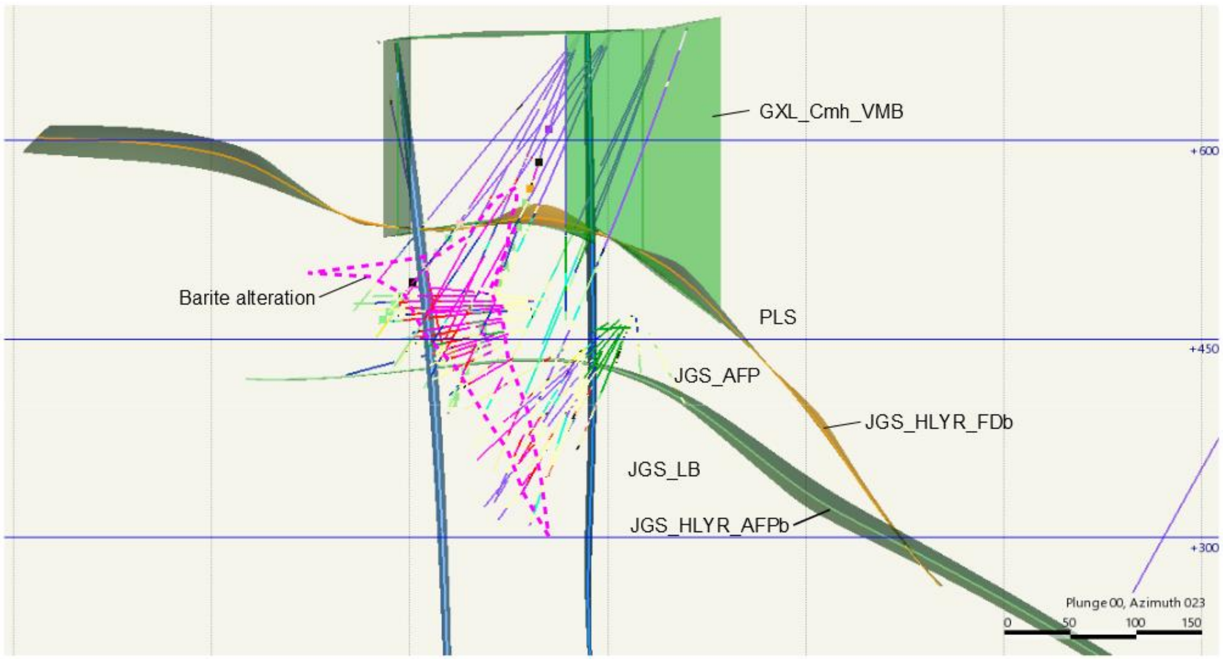

Figure 7. Cross section through south Hellyer centred on 392995E, 5395950N showing the discordant nature of the barite alteration 'pipe'. Note the logged basalt enclosing the barite alteration pipe. The southern limit of the Geoinformatics model for the Hellyer Basalt (GXL_Cmh_VMB) is shown, along with the newly defined surfaces of an idealised position of the dacite horizon based on occurrences to the south of this section, and the base of the AFP (JGS_HLYR_AFPb). Drill-holes shaded for summary lithology and points shaded for lithogeochemical classification. PLS – pillowed lava sheet basalt; AFP – feldspar phyric andesite, LB – lower basalt. View window is 50m wide looking towards 023 bearing.

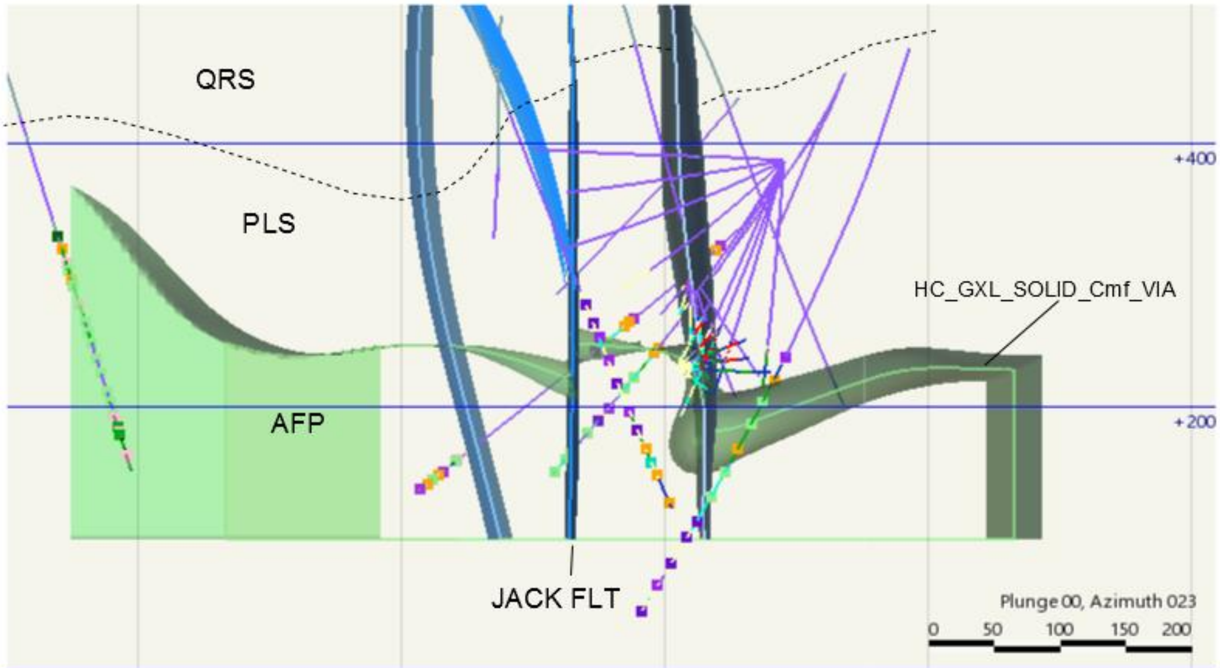

Figure 8 Cross section through north Hellyer centred on 393427E, 5396830N (100 m view window). The lower parts of Hellyer show an increased amount of dacite and polymictic basaltic breccia in transition between the feldspar-phyric andesite and the upper basalt.

QUE RIVER MINE AREA

The focus for the review of the Que River mine area was to determine the architecture to the east and west of the mine. There is a detailed three-dimensional model for the mine, but that was not available for the review. One of the key questions asked in this review was whether the basalt to the east and southeast of the Que River mine area correlates to the Hellyer Basalt or Lower Basalt. Both the Aberfoyle and Geoinformatics geological maps had designated the basalt east of the Que River mine (north of the Que Fault) as the Lower Basalt. On review of the holes east of Que River Mine, it was interpreted that the stratigraphy is steeply east facing and continues eastwards to the south facing stratigraphy in the Switchback area (Figure 9).

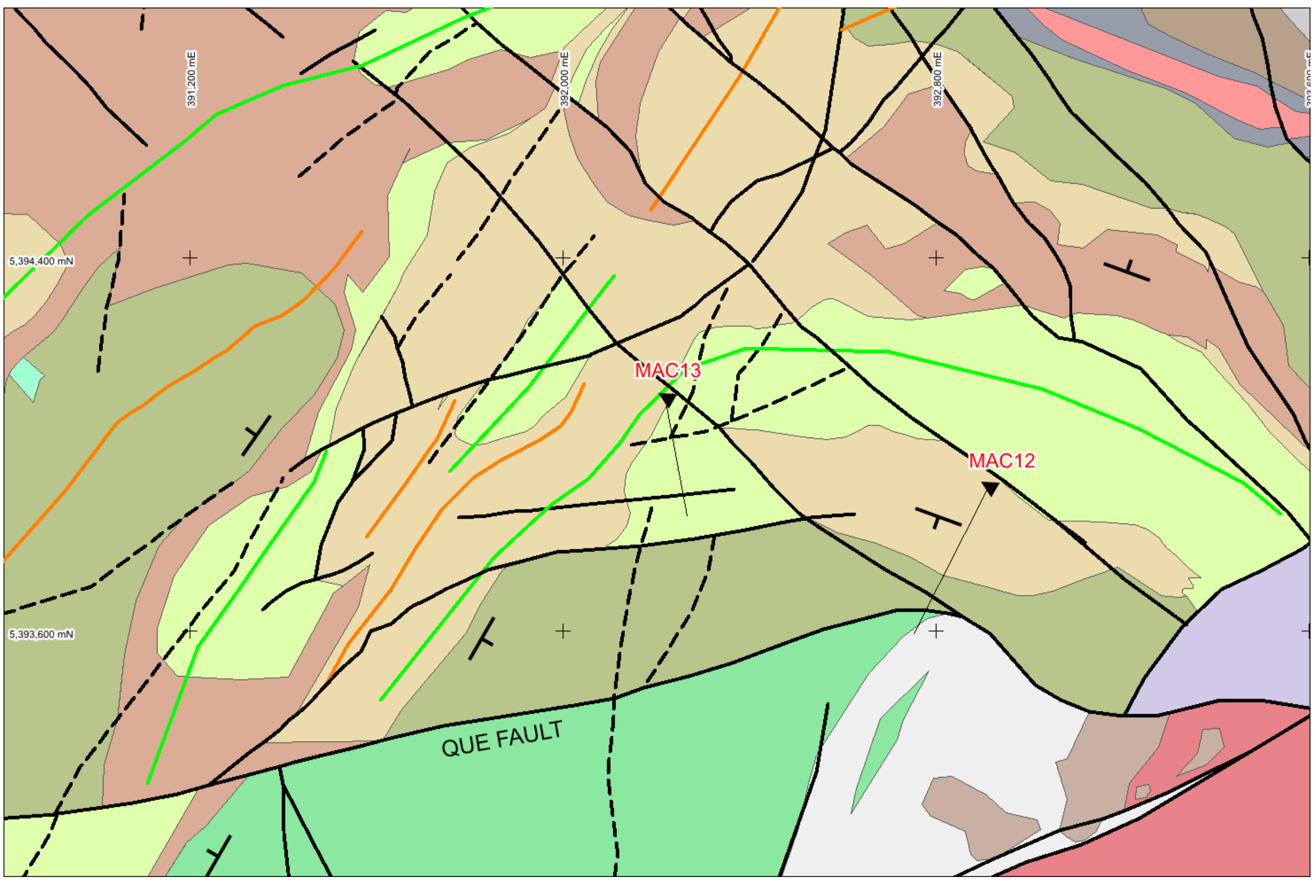

Figure 9 Interpreted solid geology map of the Que River-Switchback areas. The fundamental change in the re-interpretation is the east facing Hellyer Basalt east of Que River.

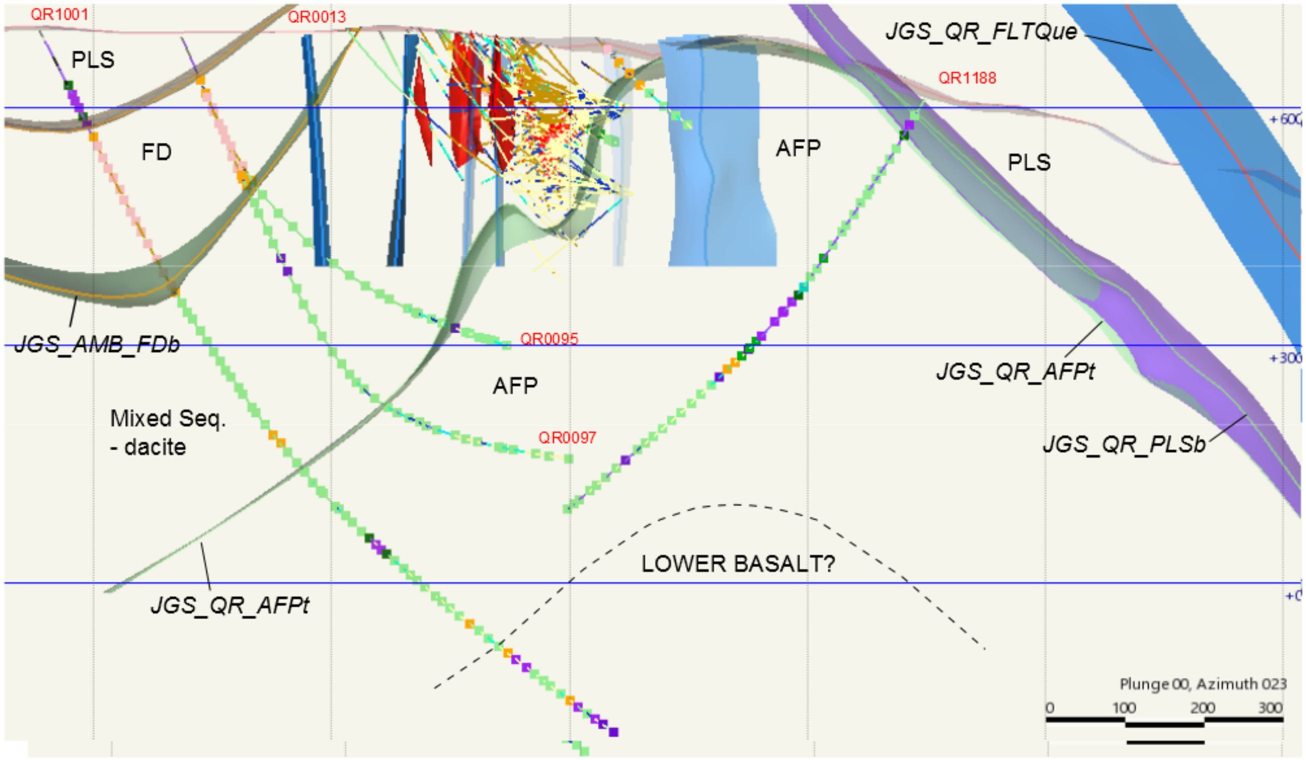

Figure 10 Cross section through the central part of the Que River mine area centred on 391525E, 5393870N (120 m wide view window). The mixed andesite-dacite sequence is significantly thinner or absent on the eastern limb of the anticline east of the Que River mine. The unnamed blue planes and red planes in the Que Mine area (dense drilling) are the modelled faults and ore lenses in the Geoinformatics Que River model.

The Que River mineralisation is hosted in a sequence of dacite and andesite, which is broken into fault segments with sub-vertical strata. A number of drill-hole intervals logged as dacite have an andesite lithogeochemical composition, and vice versa. Some parts of the reinterpreted geology map have reduced detail reflecting the general intercalated nature of the dacite and mixed sequence. Where coherent definitive dacite was recognised, it has been shown on the map.

On the basis of the few deep drill-holes to the west of the Que River mine, the mixed sequence below the thick coherent dacite package is dominated by andesitic rocks with sparse dacite (Figure 10). The Que River mine area is characterised by fault blocks of sub-vertical dacite-andesite units. The revised model presented in Figure 10 and Figure 11 shows the coherent dacite lava sequence west of the Que River mine area (i.e. extending into the Ameoba area) as overlying strata that host the Que River mineralisation. The alternative interpretation is that the coherent dacite succession is a correlative of the dissected dacite sequence interlayered with andesite in the Que River mine area. Windh et al (1992) proposed a similar model for Que River with isolated graben-fill of mixed sequence and dacite within rifted footwall AFP. This general relationship of coherent dacite lava succession west of the corridor of faulting and mineralisation at Que River is analogous to the architecture at Hellyer, however the extensive Mixed Sequence and dacite are restricted to the transition to the D-Zone and the deeper parts of Hellyer.

The Hellyer Basalt is interpreted to overlie a thin dacite-mixed sequence on the east side of the antiform on the east side of the Que River mine area. This interpretation is based on correlation of steeply east-dipping units in the few drill-holes in the area which tie into the surface mapping east of Que River mine. The Hellyer Basalt is also interpreted to extend eastwards from the Que Mine area on the southern limb of the east-trending antiform in the Switchback area. The 1:2,500 scale Aberfoyle surface maps east of Que River confirm the dacite-andesite sequence extends further east than shown on the Aberfoyle and Geoinformatics maps. Critical to this re-interpretation was the apparent correlation of rock units based on the lithogeochemistry in adjacent holes (e.g. Figure 12). Unfortunately there is no oriented drill core to verify the facing of the intersected units, which include graded sand beds as observed in QRD1289, that would confirm this interpretation.

The Que Fault is a large-scale fault with significant displacement highlighted by the juxtaposition of the footwall basalt and the Hellyer Basalt. The truncation of the strong alteration in the footwall of the Que Fault confirms the timing of the fault is post-mineralisation. The attitude of bedding in the Lower Basalt for most of the area east of the Que Fault could not be established from the drilling and outcrop maps proximal to the Que Fault. Further-south, drillholes MAC28 to MAC30 show a consistent west facing succession from the Lower Basalt to the Mixed Sequence and Dacite (Figure 13). This area is one of the least-well understood areas in the district, however the existing data suggest the area has very low prospectivity for VHMS-related mineralisation.

The alternative interpretation that the basalt in the hangingwall to the Que Fault is the Hellyer Basalt is inconsistent with the westward facing Lower Basalt south of Que River intersected in the MAC28-30 holes, and the lack of evidence for the footwall andesite which separates the Lower Basalt and Hellyer Basalt elsewhere in the district. Soil samples over the area mapped as the Lower Basalt have the lithogeochemical signature of basalt, with no andesite present (Figure 2). This suggests the basalt in the two locations discussed are continuous and equivalent.

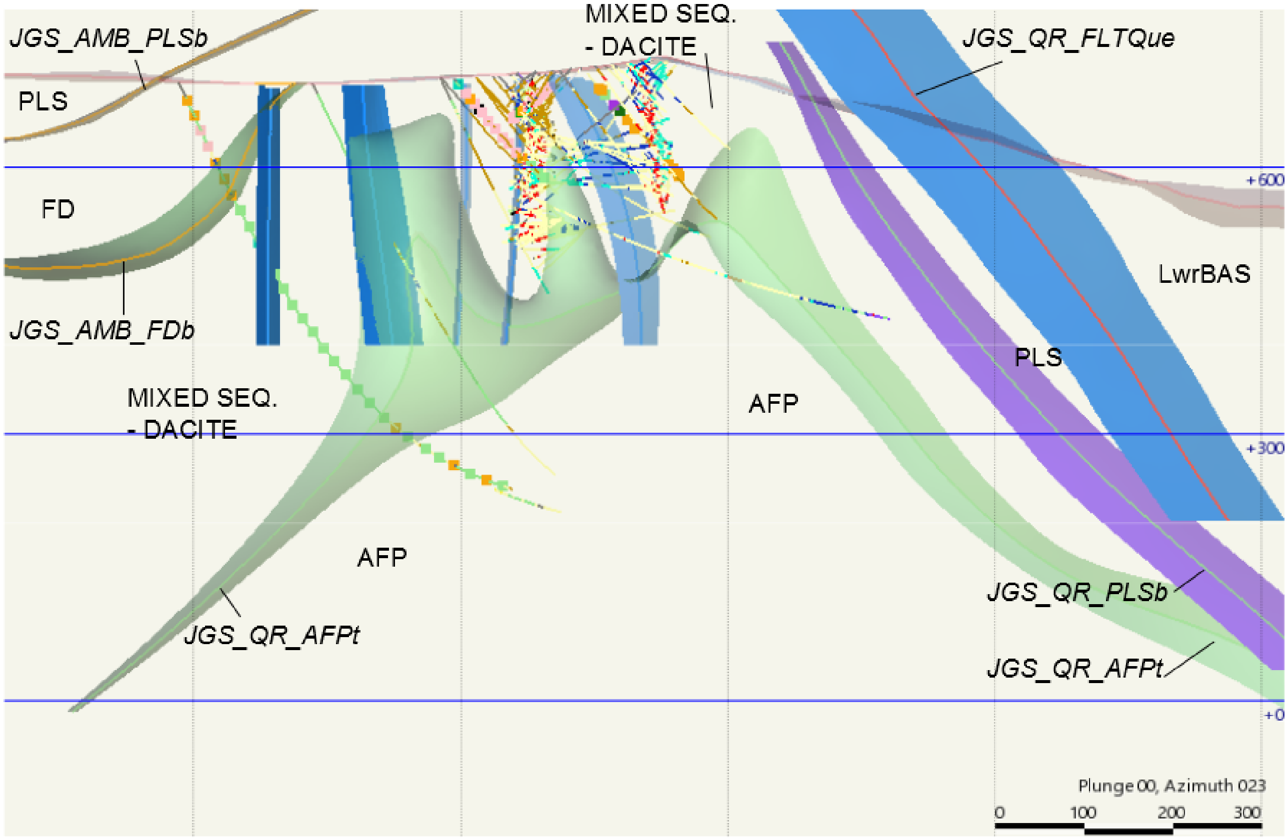

Figure 11 Cross section through Que River mine centred on 391422E, 5393624N (100 m view window). The undulations in the upper contact of the feldspar-phyric andesite (AFP) reflects the fault segments of dacite and andesite.

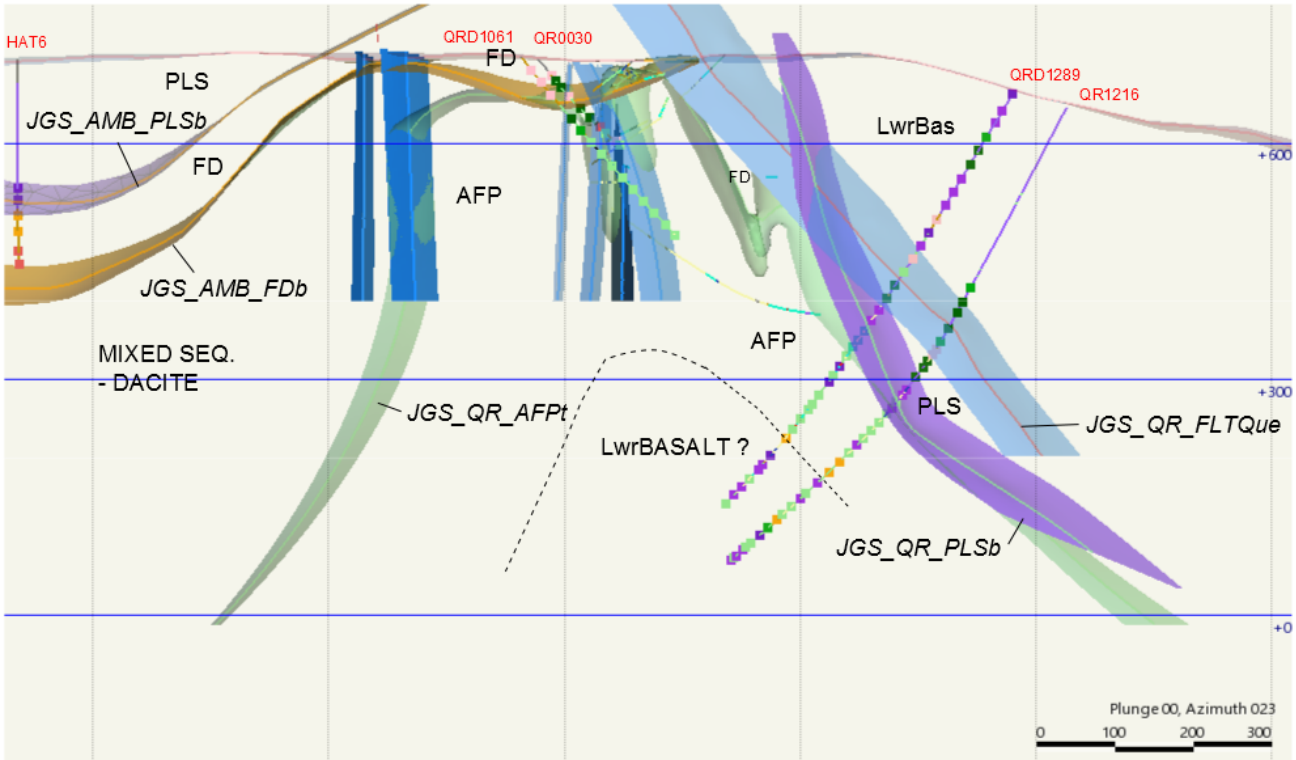

Figure 12 Cross section through southern Que River mine area centred on 391332E, 5393407N (100 m view window). Note the surface JGS_QR_PLSb should terminate against the Que Fault (JGS_QR_FLTQue). The chromium-rich basalt in holes QRD1289 and QR1216 correlate with high Cr basalt defined at surface by soil samples.

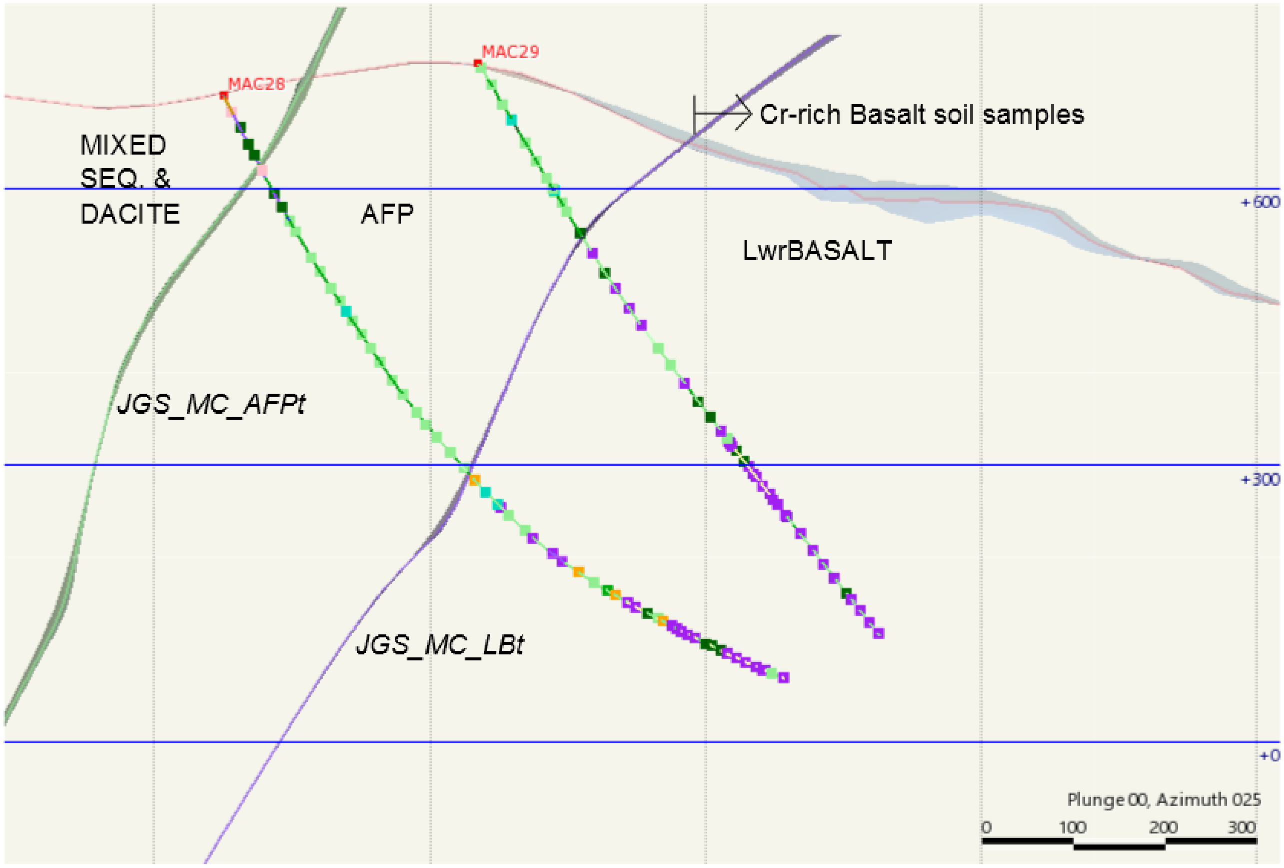

Figure 13 Cross section south of Que River Mine area centred on 390610E, 5392450N (100 m view window). The westward facing stratigraphic succession south of the Que River fault is largely based on drill-holes MAC28, 29, 30 and 30A (last two not shown) and is consistent with the geology of the Mount Charter area further to the south.

D-ZONE

The D-Zone lies between Que River mine and the Hellyer mine area; the boundary with the latter (approximately 5395775N) is marked by a change from the generally predictable stratigraphic succession of the Lower Basalt, footwall feldspar phyric andesite, dacite with or without the mixed sequence and the Hellyer basalt to a mixed sequence of andesite and dacite (Figure 14). A review of drill-holes from this area revealed inconsistencies in some cases between the original graphic geological logs, the digital geological logs and the more recently acquired lithogeochemical classifications. In particular, drill-holes DA2, DA3, DA4 and MAC2, MAC3, MAC4, QR81, QR109, QR110 and HED25 were scanned and annotated in Appendix 3.

The D-Zone is characterised by a high degree of compositional and volcanic facies variability. The rocks are mostly fragmental volcanic breccias or lapilli tuffs with few lava flows. The zone is characterised by moderate to strong alteration, as documented in some of the drill-holes, that is also reflected in the drill-hole and soil geochemistry, and alteration modelling, which has undoubtedly contributed to the difficulty in identifying the rock types. A large number of intersections are recorded in the digital database as andesite, whereas the lithogeochemistry and for some intervals, the graphic logs, indicate a greater amount of dacitic rocks is present.

The zone of mixed dacite-andesite and lesser basalt fragmental volcanic rocks in the D-Zone is difficult to define. This zone has been modelled in Leapfrog (JGS_DZ_FDb) as a grossly U-shaped basin with an elongate north-northwest orientation. A fault is interpreted to separate the relatively well-ordered succession of the Switchback area from the D-Zone that traverses close to the drillhole HED7 (*JGS_FLT_HED7*). Figure 15 and Figure 17 show the relationship between the D-Zone dacite-andesite package relative to the Switchback succession.

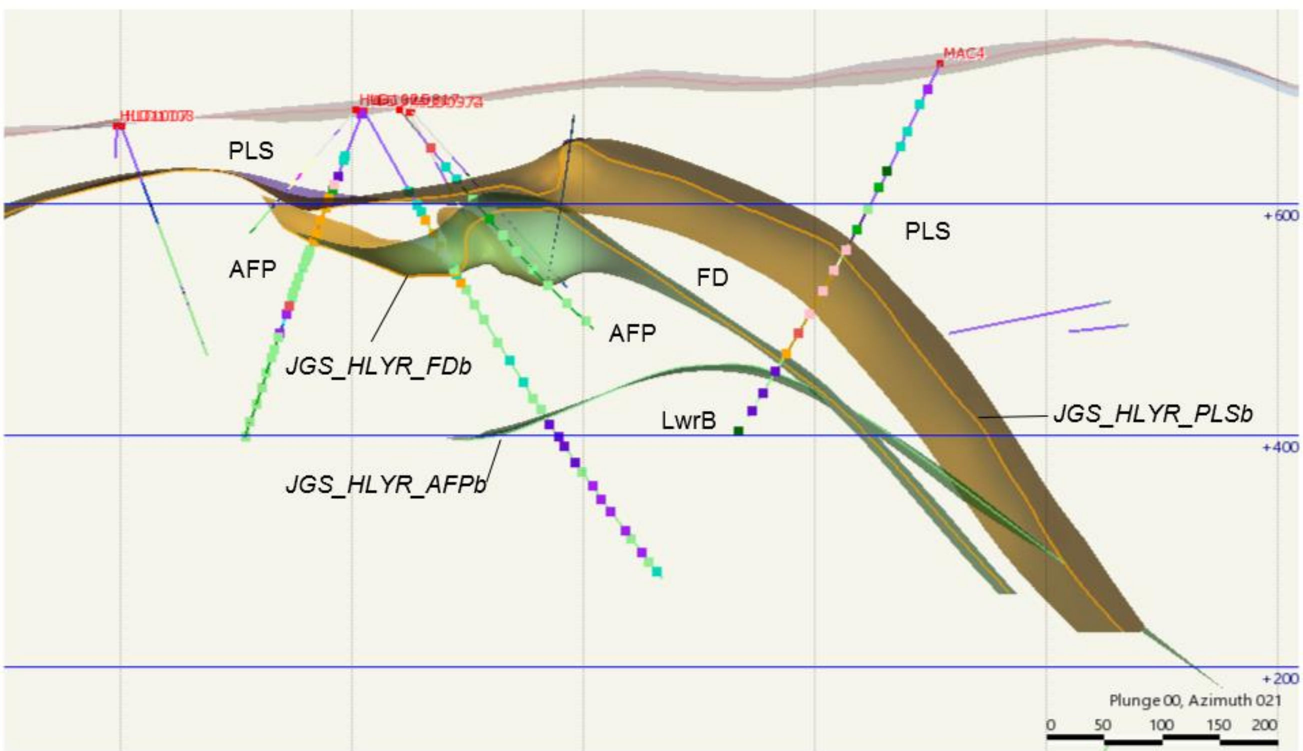

Figure 14. Cross section through the transition between Hellyer and D-Zone, centred on 392840E, 5395775N. The predictable succession of the lower basalt (LwrB), footwall feldspar phyric andesite (AFP), dacite with or without the mixed sequence (FD) and Hellyer basalt (PLS) defines the broad northward plunging fold architecture of the Hellyer mine area.

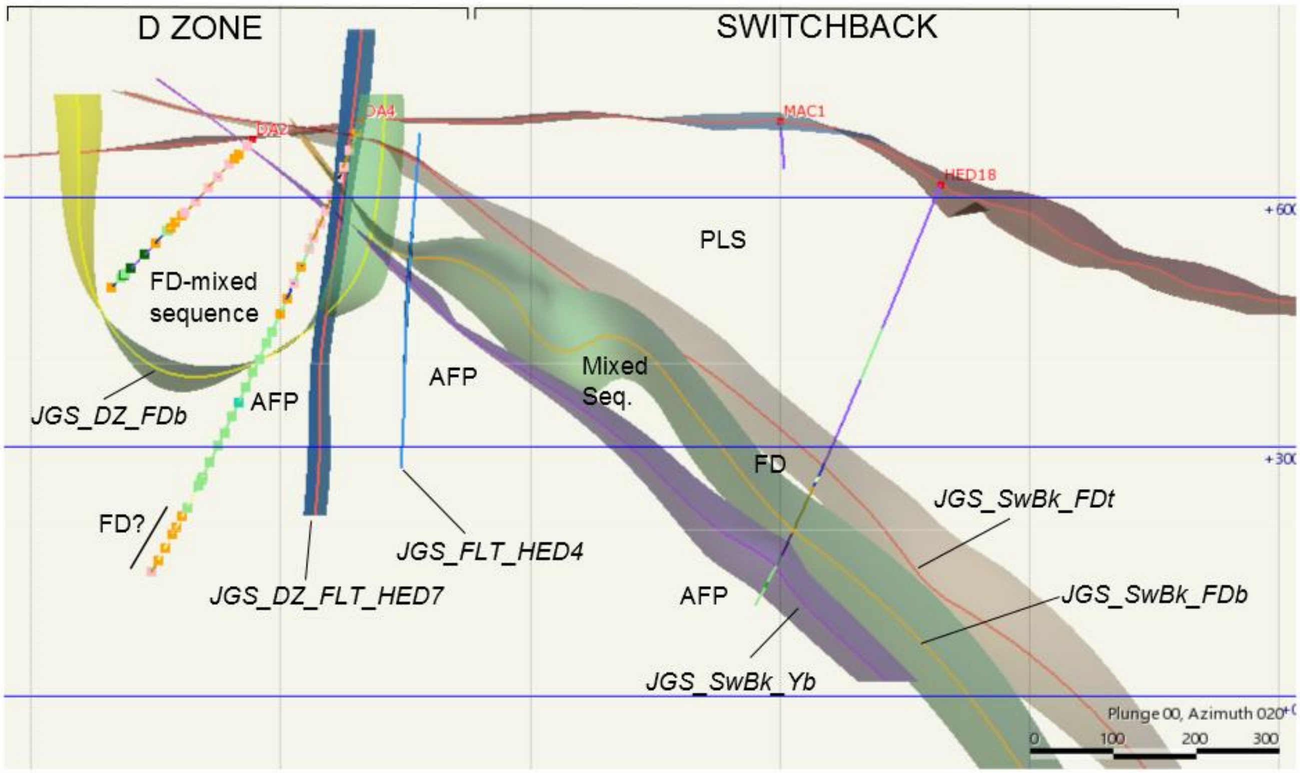

Figure 15. Cross section through the northern part of the D-Zone, centred on 392640E, 5395012N where the Switchback succession dips ENE as it forms the southern part of the Hellyer antiform. The Switchback succession is terminated by the HED7 fault, which is the approximated position of the eastern boundary of the thick succession of dacite, andesite and lesser basalt overlying the footwall feldspar-phyric andesite (AFP). Names of Leapfrog surfaces are italicised.

The southern half of the D-Zone has highly anomalous pathfinder elements (As, Sb and Tl), strong sericite (phengitic) and K-feldspar alteration as determined from the alteration modelling (Halley, 2009). The graphic log for QR0081 shows re-sedimented mineralised clasts within the mixed andesite-dacite fragmental rocks of the D-Zone. The presence of both mineralised clasts and overprinting alteration in the D-Zone package confirms that the D-Zone was the focus of a sustained mineralising system, and is considered to be the northern continuation of the Que River mine area. The high density drilling through Que River highlights the complex fault-fold architecture with sub-vertical strata. It is probable that there is greater complexity similar to that in the Que River mine area, than what has been possible to define in the Leapfrog model.

The northern part of the D-Zone forms the general east-facing limb of the Ameoba anticline (Figure 16).

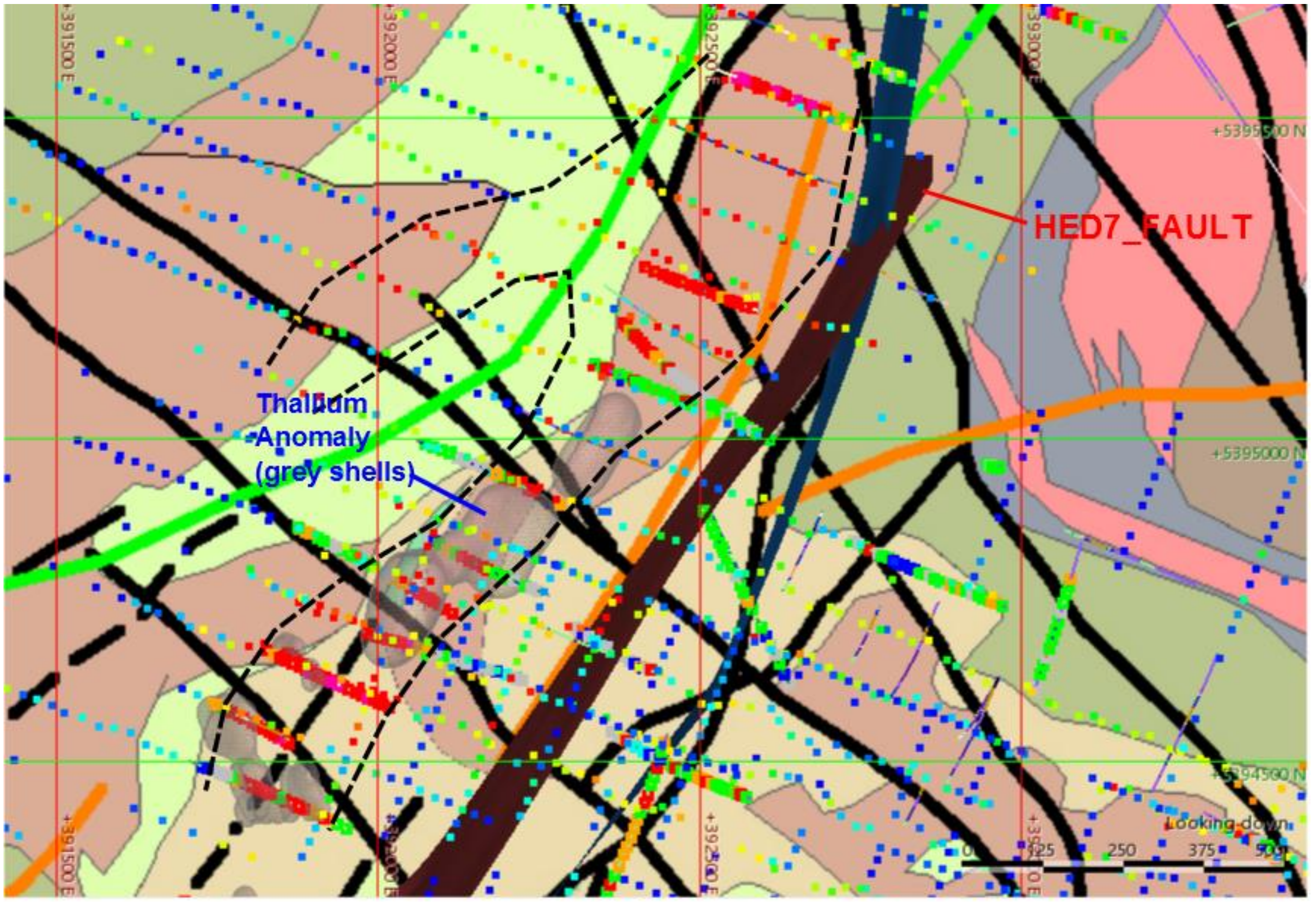

Figure 16 D-Zone geology map overlain by drill-hole traces shaded for geology, drill-hole geochemical samples shaded for modelled alteration (red = strong sericite, pink = K-feldspar alteration), outline of drill-hole thallium anomalism (grey shells) and soil samples shaded for As ppm (blue = low As, red = high As). The dashed black line outlines the main sericite-K-feldspar-sulphide alteration in the D-Zone with a complementing west facing limb of the folded Mixed Sequence+Dacite to the west (green lines represent anticline axes, orange line represents syncline axes). The HED7 fault demarcates the generalised boundary between the D-Zone and Switchback geology.

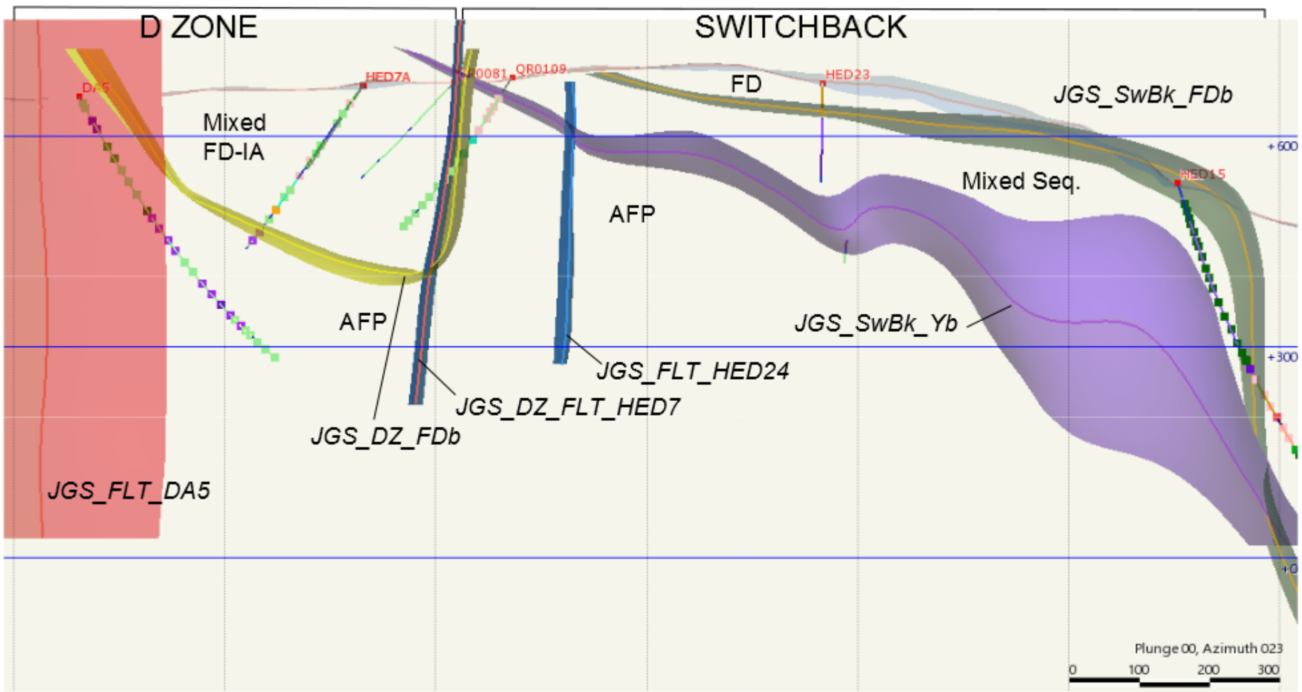

Figure 17 Cross section through the south end of D-Zone centred about 392585E, 5394565N. The basaltic rocks in DA5 are interpreted to be part of the AFP unit or the Lower Basalt. The AFP-Mixed Sequence-Dacite succession in the Switchback area is NNE dipping in the centre of image and east dipping right of image.

SWITCHBACK AREA

Two deep drill-holes, namely MAC12 and MAC13, were assessed in detail to resolve the stratigraphy in the south side of the Switchback area (Figure 18). The steep alpha measurements of the few bedding contacts in MAC12 support the interpretation that the dacite and mixed sequence intersected in MAC12 correlates to these units mapped at surface. A field visit to the general area located dacite, however bedding and strike could not be determined.

The northern side of the Switchback area has a semi-regular drill coverage of HED-prefixed drill-holes that were the subject of a BSc Honours thesis (insert reference). The mixed sequence in this area comprises polymictic conglomerate with a high proportion of basalt clasts, coherent to autobrecciated basalt and coherent to autobrecciated dacite (Ref). Mineralised and altered polymictic clasts are present in the Mixed Sequence in the Switchback area, with some clasts metres in size. These clasts are the likely source for the positive pathfinder anomalism in the geochemical datasets, as little pervasive alteration was observed in the one drill-hole reviewed.

The syncline traversed by the HED7 fault, which nominally bounds the east side of the D-Zone, was previously mapped as the Hellyer Basalt (Figure 18 – dashed red line). This interpretation is inconsistent with both the soil sample lithogeochemical classifications and the 1:2,500 scale outcrop mapping. This area has been reinterpreted as the mixed sequence.

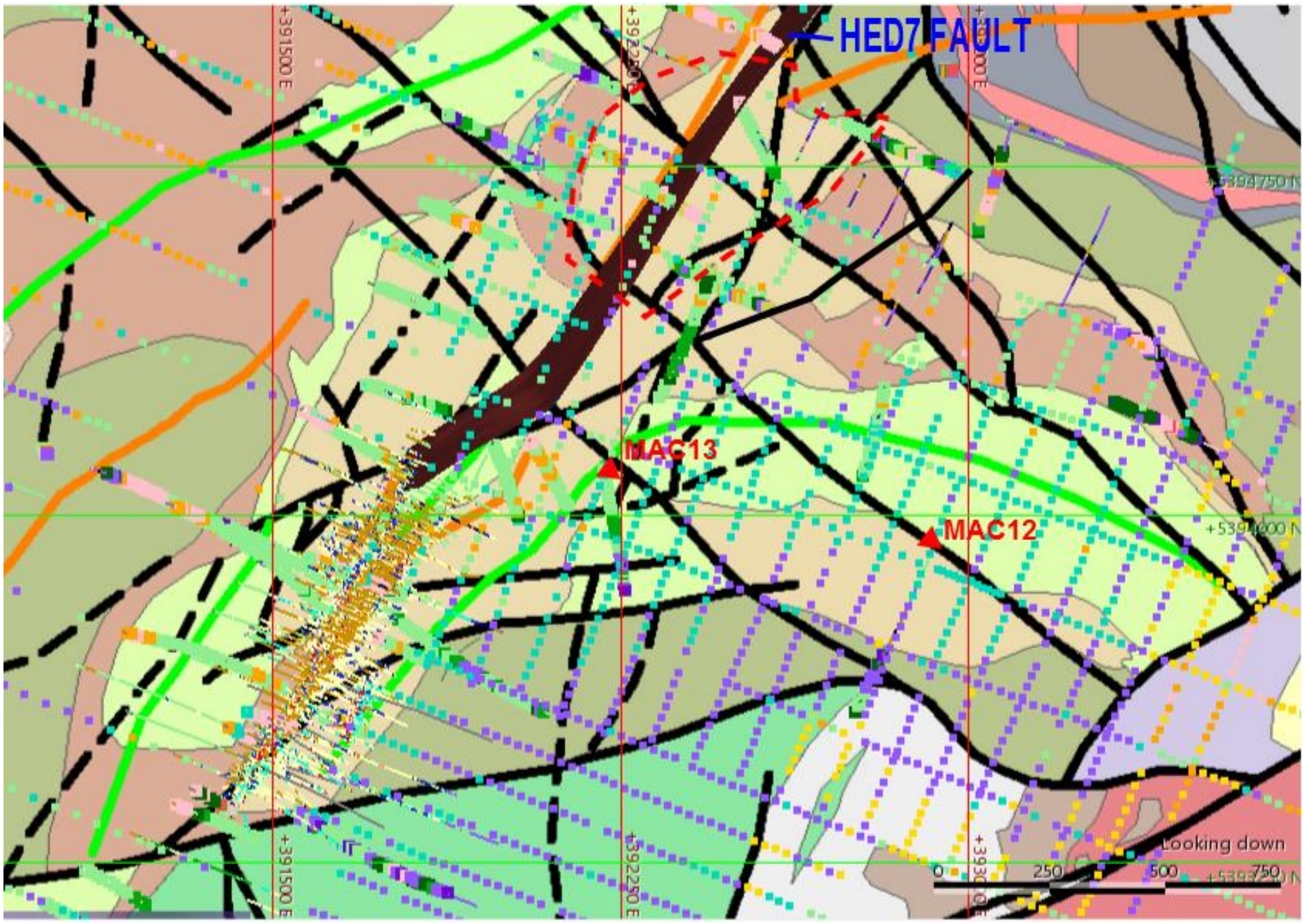

Figure 18 Map of the Que River and Switchback areas with soil samples shaded for lithogeochemical classification, drill-hole traces shaded for logged lithology and downhole lithogeochemical samples. Holes MAC12 and 13 referred to in the text are shown. The area outlined by the dashed red line was previously interpreted as PLS but has been reinterpreted as mixed sequence.

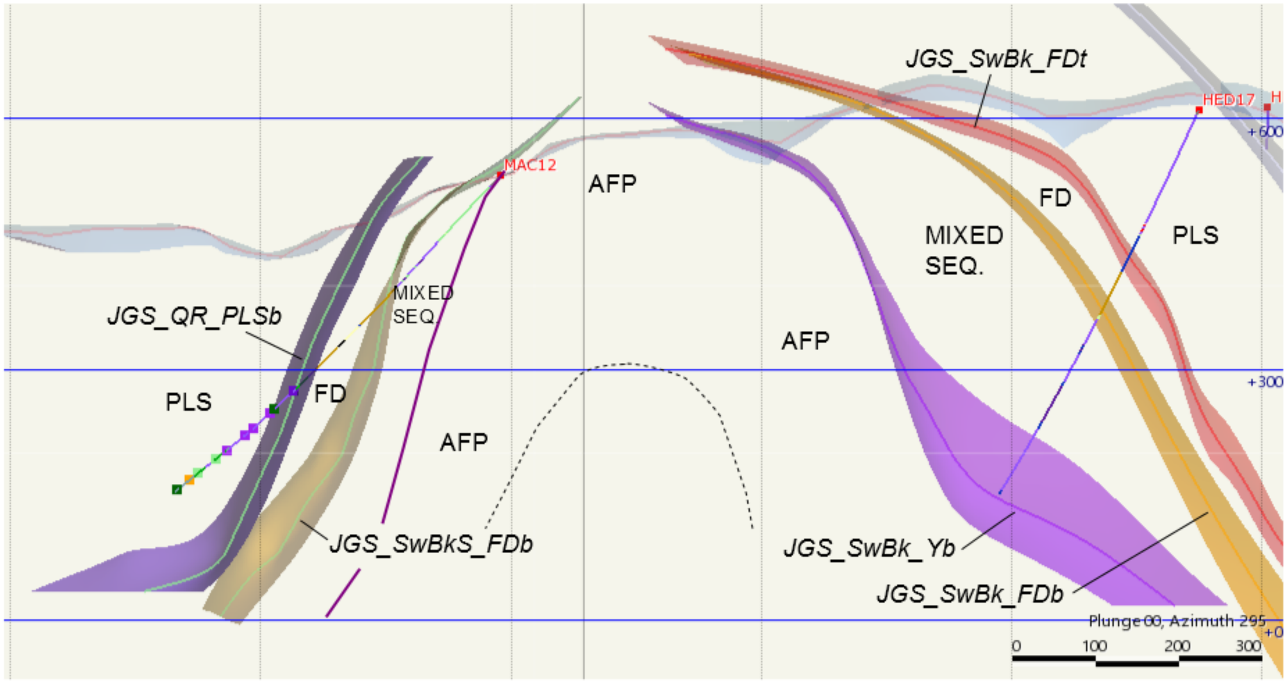

Figure 19 Cross section through the Switchback area centred on 392875E, 5393840N (view window 100m). Drill-hole MAC12 is collared close to the base of the Mixed Sequence which correlates to the strata intersected in the upper half of the drill-hole.

AMEOBA AREA

The geology of the northeast trending antiform referred to as the Ameoba area appears to be consistent with the available mapping, drill-hole and geochemical data. No significant changes were made to the map or 3D model apart from an expansion of the dacitic rocks in place of the mixed sequence.

MT CHARTER AREA

The Mixed Sequence that extends south of the Que Fault is overlain by the Hellyer Basalt in a remnant syncline, and to the east by a trachytic andesite (IAT) with diagnostic low-Cr Suite 3 andesite lithogeochemistry (Figure 20). The trachytic andesite is interlayered with several rhyodacite to rhyolite flows, and is underlain by the Mixed Sequence with thick intersections of dacite (Figure 21 - Figure 23). Generally the Mixed Sequence in the Mt Charter area thickens southward, and is associated with an increase in dacite and rhyolite.

The stratigraphic succession is mainly southwest to southeast facing. At least two phases of folding are evident in the area, with an early fold phase with axial planes trending southeast, refolded by upright-folds trending northwest. The second phase of folding is pronounced to the southeast of the transition from the

Mixed Sequence to the block with thickened dacite and rhyolite flows, coinciding with the southeast margin of the red square on Figure 20. This transition may have played an important role in focusing the mineralising system in the cryptic structural architecture reflected by the strata.

The surfaces created in Leapfrog were constructed with a heavy reliance on the lithogeochemistry with no consultation with the graphic geology logs. Again it is reiterated that these surfaces have not been cleaned to remove intersections or interpolated extensions, and it is advised to view the strings from which the surfaces were created as a guide to the limit of accuracy.

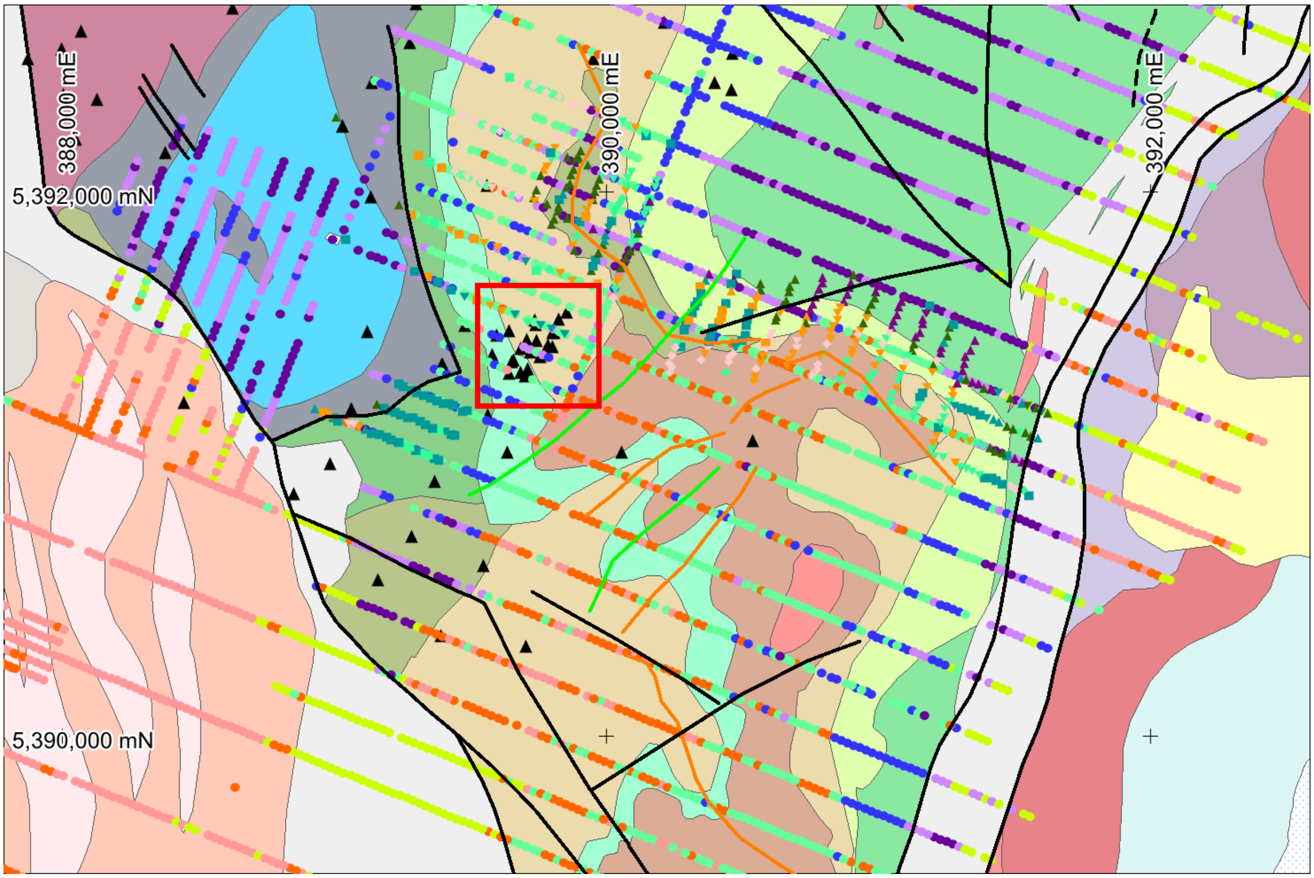

Figure 20 Interpreted solid geology map overlain by soil samples (Aberfoyle and Bass datasets) shaded for lithogeochemical classifications. The main Mt Charter deposit is located in the red square. Black triangles represent drill-hole collars.

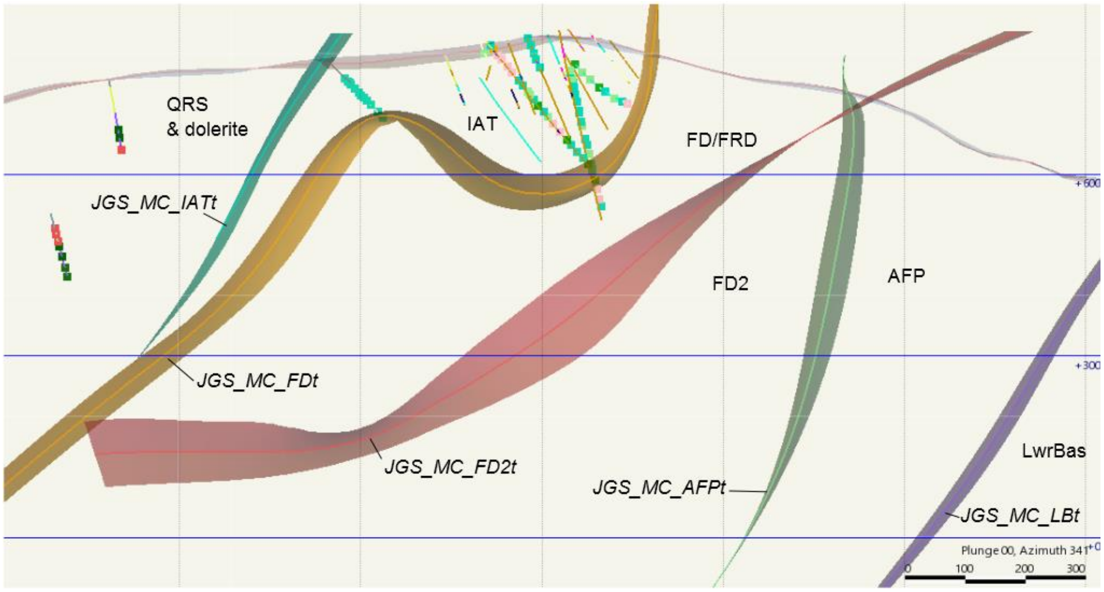

Figure 21 Cross section through Mt Charter centred on 389788E, 5391462N.

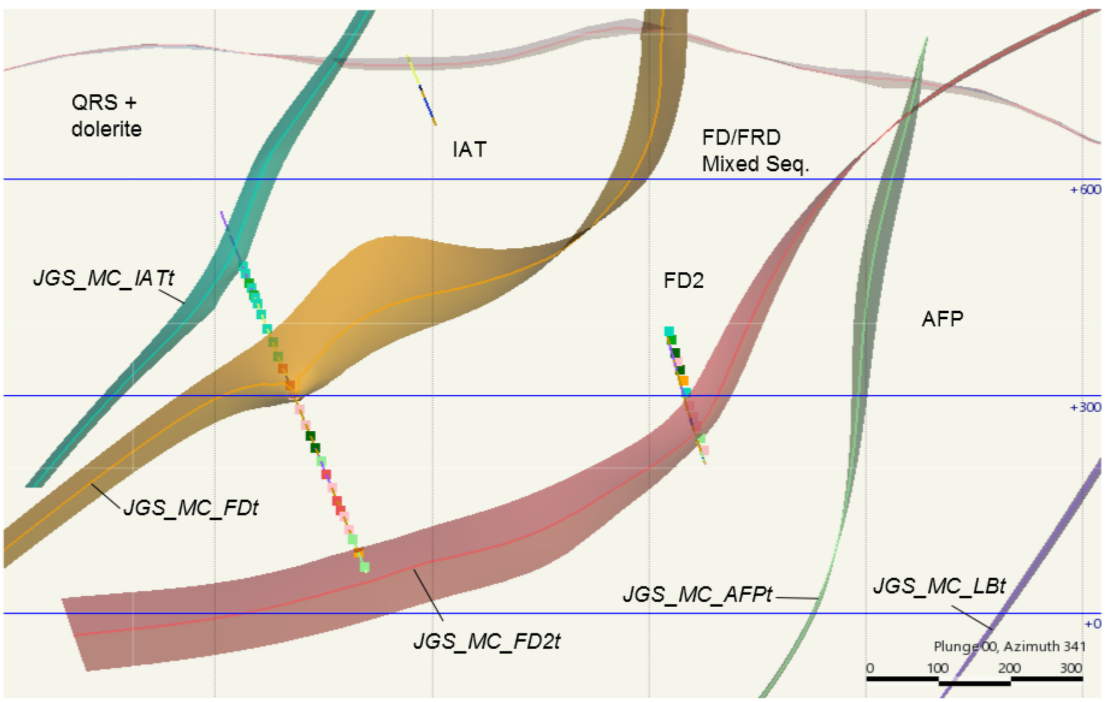

Figure 22 Cross section through Mt Charter centred on 389640E, 5391575N.

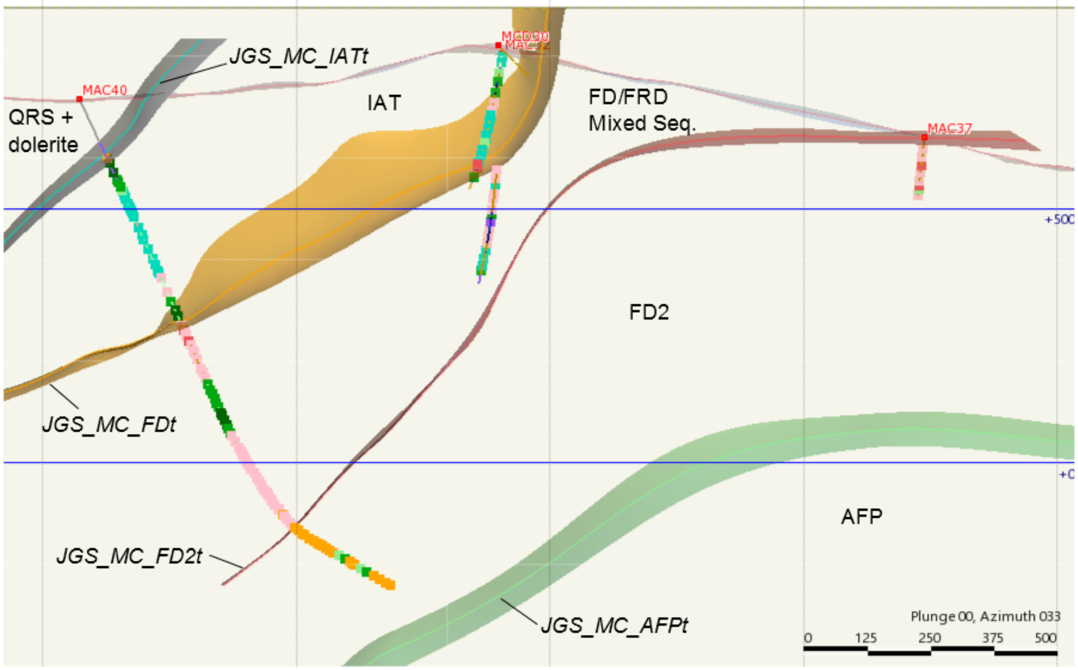

Figure 23 Cross section through Mt Charter centred on 389585E, 5391710N.

Conclusions and recommendations

Comments on the Exploration Dataset

Drill-hole Data

Logged geology is of a high standard and clearly benefited from the logging framework established early in the exploration history. The translation from the graphical logs to the digital dataset has involved some data loss and reinterpretation, however for most areas this has not severely impacted on the outcome interpretation.

The table DHMineralisation contains the fields MINCONC and MINTEXTURE, which respectively records the percentages of ore and related minerals and their form. A model of the 3-D distribution of these minerals could be generated within Leapfrog with relative ease following an extraction of the percentages for each of the individual minerals into separate fields. A similar extraction of the information on the vein style, composition and abundances would enable a vein density model to be generated that may provide more clarity on the continuity and prospectivity of certain alteration zones. The effectiveness of using both of these datasets will depend on the consistency of the captured data. An initial assessment on the consistency of the logging of these parameters should be undertaken prior to undertaking the translation. This technique has proven to be effective on other projects and can be integrated with the multi-element geochemistry and multispectral data to build an improved understanding of the thermal and chemical gradients in the system.

The distribution of faults and strain could not be appropriately determined from the drill-hole database because the table 'DHFault' contained no data. The apparent association of sulphide lenses with structure in the Que River mine, and the uncertainty in delineating structure from the stratigraphic breaks, exemplifies the need to obtain this data to improve the 3-D models.

Geochemical Data

The soil geochemical data collected by Aberfoyle lacks elements such as Tl and Sb, which are shown from more recently acquired drill-hole and soil data to be effective pathfinder elements. However, As serves well for the purpose of detecting near-surface alteration with anomalous pyrite. Consequently, the sample spacing and data are considered satisfactory for exploration needs. More details on the application of the soil and drill-hole geochemistry are provided by Halley (2013).

Lithogeochemical drill-hole data were integral in re-interpreting parts of the project area. They provide an independent measure of the alteration form and intensity, and show the systematic variation with proximity to ore zones. These data are invaluable, and it is recommended that for other prospective areas identified from conventional datasets, multi-element geochemical data are collected to assist in exploring for the mineralised parts of the alteration systems. Multi-spectral data also provide additional information about the fluid conditions at the time of formation of the alteration zones. Identification of the systematic variation in ? can enable exploration to focus on the more prospective parts of the target.

Non-destructive XRF analysers (in particular bench top systems) have improved significantly, and could provide a cost-effective method of acquiring the quality multi-element data required. The cost-effectiveness is dependent on the scale of the sampling and analysing campaign.

Geophysical Datasets

As neither Carl Young nor Bryan Krapež have the appropriate knowledge of the current generation of geophysical tools and techniques available and cost-effectiveness, no further comments or recommendations are made with regard to the appropriateness of the existing geophysical datasets and benefits of additional surveys.

Summary of the Geological Re-Interpretation

The fundamental changes to the interpreted solid geology map are the identification of:

(1) additional Mixed Sequence and dacite to the east and west of the Que River mine;

(2) the compartmentalised nature of D-Zone rock units, and the recognition of the continuation of the style of volcanism and sedimentation that characterised the Que River Mine; and

(3) the stratigraphic relationship across the Que Fault.

Critically, this review did not identify major shortcomings with the exploration data or the previous interpretations, such that the exploration strategy applied historically is considered sound and effective. The most significant gap in the data is the lack of oriented drill-core, which hampered geological interpretation in some areas. It is recommended that future drilling include oriented core for at least a subset of drill-holes, in order to constrain the geological interpretation.

The changes to the map and 3-D model are incremental improvements that combined with the alteration modelling may provide a better understanding of the mineral system. The recognition in this review of the anticline east of the Que River mine, and therefore the continuation of the favourable ore horizon eastwards into the Switchback area, is a renewed opportunity to reassess the strong alteration east of Que River mine, and the possibility for the existence of additional repeat sulphide lenses. A revisit of the geophysical data together with the alteration modelling is recommended to assess the prospectivity east of Que River mine.

Volcanic and sedimentary facies vary both west and east of the central corridor that hosts Que River mine, D-Zone and Hellyer. These variations include: (1) relatively coherent and consistent stratigraphic succession west of Hellyer and Que River mines; (2) abrupt termination of the Switchback succession east of the D-Zone; and (3)rapid thickening of the dacite-rhyolite-mixed sequence east of Mt Charter deposit. These lateral facies variations either side of the central Que River-D Zone--Hellyer corridor have implications for the prioritisation of exploration targets. Less-ordered and disrupted strata in the Que River mine, D-Zone and in parts of the footwall andesite succession beneath Hellyer likely reflect a corridor of focussed rifting and reactivation. Such focussed structure was integral to establishing a productive sub-seafloor fluid circulation system that was required to develop sizeable mineral accumulations. Exploration targets with identifiable complexity in footwall strata to the favourable ore horizon, with the appropriate indicators of a potential mineral system, should be given higher priority than anomalies located in relatively undisrupted strata with simple stratigraphic architecture.

The interpreted solid geology map and the surfaces modelled in Leapfrog have been provided to facilitate the construction of a finalised 3-D model, integrating the alteration modelling. The strings used to build the surfaces should be used in conjunction with the surfaces as the unconstrained peripheral parts of the surfaces have not been trimmed.

References

Windh J., Etheridge, M., and Henley, 1992: Structural Setting of the Mackintosh Block and it's Mineralisation. Confidential Report to Aberfoyle Resources.

Halley, S., 2013, Bass Metals Lithogeochemistry_2013. Confidential Consultant Report for Bass Metals.

Halley, S., 2009, Bass metals Lithogeochemistry. Confidential Consultant Report for Bass Metals.