

## Memorandum re: Henty Area Stratigraphy

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### Introduction

Modeling of the South Henty area has resulted in a reevaluation of some of the associations of the stratigraphy in the Henty-Mt Julia-South Henty region.

### Former stratigraphic column

Previous understanding of the stratigraphy was:

<b>Group</b>	<b>Formation</b>	<b>Lithology</b>
Tyndall Group	Zig Zag Hill Formation	Post-eruptive rhyolitic, volcanolithic Conglomerate and quartz-crystal rich sandstone
	Mt Julia Member	Syn-eruptive, quartz-feldspar crystal rich sandstone Massive quartz phyric rhyolite lavas, breccias and intrusions
	Lynchford Member	Syn-eruptive feldspar crystal rich volcanoclastic sandstone Massive carbonate and marly sediments Volcanoclastic sediments Howards Basalt – fine grained basaltic andesite dykes, lavas and breccias
Central Volcanic Complex (CVC) Suite II	Suite II Porphyry	Quartz feldspar hornblende porphyry. Intrusive, fractionated
	Anthony Road Andesite	Feldspar hornblende phyric andesite and breccia, extrusive and intrusive
Central Volcanic Complex (CVC) Suite I	Newton Creek Dacite	Dacitic to andesitic volcanoclastic sediments Dacitic lavas, breccias and intrusions Dacitic volcanoclastic pumice breccias
	Spillway Breccia	Coarse polymict and dacitic mass flows with some sulphide clasts
	Spillway Basalt	Massive to stratified monomictic “fire fountain” basalt breccia
Yolande River Sequence	Footwall Pumice Breccia	Massive feldspar phyric pumice breccia Vitric siltstones and sandstones

### Discussion

#### Lynchford Member

The Howards Basalt or Howards Basalt Breccia has been taken to be the basal unit of the Lynchford. However at South Henty it is apparent that there is more than one basaltic unit in the Lynchford. The one at the base of the Lynchford has been renamed the Lower Howards Basalt. The second unit, which occurs higher in the stratigraphy within the Lynchford, has been named the Upper Howards Basalt. This Upper unit contains much of the limestone and marly sediments within it, as beds alternating with the basalt. The occurrence of two basaltic units associated with the Lynchford at South Henty has been

masked by the displacement of the Lower Howards Basalt by the Anthony Road Andesite, which has intruded as a sill preferentially along it. The result of the lack of acknowledgement of the two units has been that much of the drilling of the so called Henty-Comstock Horizon in South Henty has not in fact drilled that Horizon, but the zone of Lynchford below the Upper Howards Basalt.

### Suite II Porphyry

It has been difficult to separate out the Suite II Porphyry from the Anthony Road Andesite, due to the confusion in computer coding in the South Henty area. However, it is apparent that the two are spatially associated. The Suite II Porphyry appears to be a later phase than the Anthony Road Andesite as it is found on its edges. It could be a late fractionated phase of the same intrusive episode.

### Anthony Road Andesite

In the South Henty area there was no evidence of an extrusive andesite. All of the andesitic rocks fell neatly within a modeled sill intruding the stratigraphy along a zone of weakness, the Lower Howards Basalt.

### Spillway Basalt and Spillway Basalt Breccia

These units are spatially related and along strike analogues of each other. Taken together they can be traced continuously throughout the South Henty area to the southern end of the mine. As with the Lower Howards Basalt further up the stratigraphy, they have been preferentially intruded by intrusive sills, at least in one area. They lie within the Central Volcanic Complex, not near its base. There are significant thicknesses of CVC below the Spillway Sequence.

### Footwall Pumice Breccia

The Footwall Pumice Breccia is not part of the Yolande River Sequence. It is the Newton Creek Dacite volcanoclastic pumice breccia unit, which lies directly below the Spillway Sequence. It is underlain by further Newton Creek Dacite. It is probably unnecessary to differentiate this unit at all.

### Yolande River Sequence

The relationship between this unit and the overlying CVC is difficult to determine. In the north of South Henty it appears to be a faulted contact, whereas further to the south Pasmenco surface mapping and wacker sampling suggests it is gradational, with some outcrop apparently with bands of CVC and Yolande sediments. The Pasmenco work also indicates that the sediments include conglomerates, not just siltstones and sandstones.

## **Conclusions**

A slightly amended stratigraphic column is suggested as a result of the South Henty modeling, for the South Henty area:

<b>Group</b>	<b>Formation</b>	<b>Lithology</b>
Tyndall Group	Zig Zag Hill Formation	Post-eruptive rhyolitic, volcanolithic Conglomerate and quartz-crystal rich sandstone
	Mt Julia Member	Syn-eruptive, quartz-feldspar crystal rich sandstone Massive quartz phyric rhyolite lavas, breccias and intrusions
	Lynchford Member	Syn-eruptive feldspar crystal rich volcanoclastic sandstone <b>Upper Howards Basalt intercalated with massive carbonate and marly sediments</b> Volcanoclastic sediments <b>Lower Howards Basalt – fine grained basaltic andesite dykes, lavas and breccias intercalated with carbonates and marly sediments</b>
Central Volcanic Complex (CVC) Suite II	Suite II Porphyry	Quartz feldspar hornblende porphyry. Intrusive, fractionated
	Anthony Road Andesite	Feldspar hornblende phyric andesite and breccia, <b>intrusive sill</b>

Central Volcanic  
Complex (CVC)  
Suite I

Newton Creek Dacite

Dacitic to andesitic volcanoclastic sediments  
Dacitic lavas, breccias and intrusions  
Dacitic volcanoclastic pumice breccias  
Coarse polymict and basaltic/dacitic mass flows  
with some sulphide clasts  
Massive to stratified monomictic “fire fountain”  
basalt breccia

Spillway Sequence

Newton Creek Dacite

Dacitic to andesitic volcanoclastic sediments  
Dacitic lavas, breccias and intrusions  
Dacitic volcanoclastic pumice breccias

Yolande River  
Sequence

Vitric siltstones and sandstones and  
conglomerates