

**Specialist input for Geological matters, Heritage, Part 7 of Auckland City District Plan:  
Hauraki Gulf Islands Section – Proposed 2006**

**Prepared by Bruce Hayward PhD,**

**26 July 2007**

Thank you for requesting input into the review of the submissions to the Auckland City District Plan: Hauraki Gulf Islands Section – Proposed 2006 (“the Plan”). I have received your memo dated 18 July 2007 and the summary of submissions relating to this issue, together with a map and aerial photo mosaic showing the boundaries of the properties in question and the boundaries of the proposed geological sites for scheduling. In making the comments below I have reviewed the material supplied in addition to the full submissions.

**Annexure**

**Issue raised:** Opposes the use of the term Gondwanaland and seeks the replacement of all occurrences as occur in Annexure 1c with Gondwana

**Submission numbers:** 3180/1

**Comments:** Gondwanaland was the term originally coined in the 19<sup>th</sup> century for the large southern supercontinent once composed of Australia, NZ, S America, Africa and India. It was an inferred land named after the Gondwana sequence of rocks (formally defined by geologists as the Gondwana Supergroup) in the Gondwana Basin, SW of Calcutta in India. The Gondwana region means “land of the Gonds”.

At the 5<sup>th</sup> International Gondwana Conference held in Wellington in 1980, a resolution was passed by a small group dominated by New Zealanders, that the supercontinent should preferably be referred to as Gondwana, and this change has been promulgated worldwide. Unfortunately the Wellington meeting was misled into thinking that using Gondwanaland was a tautology, to refer to “the land of Gondwana” when the term “Gondwana” meant “land of the Gond”. After all in English we would not say “land of the land of the Gond”. However, in truth Gondwanaland was not named after the place Gondwana, but after the Gondwana sequence of rocks. Indian geologists are adamant that Gondwana (after which the international conferences are named) refers to the Gondwana sequence of rocks in the Gondwana Basin and that Gondwanaland is the correct and valid term for the supercontinent.

In 1996, Dr Hamish Campbell explained this in an article in the Geological Society of NZ Newsletter and ever since most NZ geologists (including myself) have returned to using the correct use of the term Gondwanaland for the supercontinent. Unfortunately the incorrect term Gondwana is still widespread in the public domain and in dictionaries and glossaries that have not yet caught up with the play.

**Additional limitations – inner islands**

**Issue raised:** Unless the value, number and dimensions of the identified archaeological sites, geological sites and sites of ecological significance on Thumb Point Station Ltd’s land (CT 47C/889) can be supported by relevant and satisfactory assessment, they should be deleted or amended.

**Submission numbers:** 526/13

**Issue raised:** Unless the value, number and dimensions of the identified archaeological sites, geological sites and sites of ecological significance on Man O' War Farm Ltd's land (CTs 82C/468, 741/131, 637/197) can be supported by relevant and satisfactory assessment, they should be deleted or amended.

**Submission numbers:** 527/13

**Issue raised:** Unless the value, number and dimensions of the identified archaeological sites, geological sites and sites of ecological significance on Huruhe Station Ltd's land (CTs 758/233, 26A/1074, 26A/1073, 758/234, 758/235, 26A/1075) can be supported by relevant and satisfactory assessment, they should be deleted or amended.

**Submission numbers:** 528/13

**Issue raised:** Unless the value, number and dimensions of the identified archaeological sites, geological sites and sites of ecological significance on Man O' War Station Ltd's land (CTs 195/118, 173/117) can be supported by relevant and satisfactory assessment, they should be deleted or amended.

**Submission numbers:** 529/13

**Issue raised:** Unless the value, number and dimensions of the identified archaeological sites, geological sites and sites of ecological significance on South Coast Station Ltd's land (CTs 23C/200, 23/199) can be supported by relevant and satisfactory assessment, they should be deleted or amended.

**Submission numbers:** 539/13

**Comments:** The above submissions refer to the proposed scheduling of Thumb Pt tombolo, Fort Hill andesite breccia outcrop, and seven areas of outstanding natural boulder fields at Stony Batter, being those that remain largely undisturbed after the extensive clearance work by the landowners over the last decade or so. All sites have been visited and evaluated by myself using the criteria listed in the plan, with written descriptions explaining the score given for each criterion.

Stony Batter is ranked as internationally outstanding as one of the few examples in the world of the rare phenomenon of solution of basalt by rain water with the creation of artistic fluting normally only seen in limestone. Stony batter is the best example of this phenomenon in New Zealand. It is only known elsewhere in New Zealand in a small area around Hokianga Harbour and above Whangaruru Harbour. Stony Batter is one of Waiheke's major tourist attractions where the WW2 fort and boulder field landscape, after which the site is named, are the major attractions. The boulder field provides the only evidence of the eruption of a substantial basalt volcano in this vicinity about 7-8 million years ago – Waiheke's only volcano. The boulder field is a unique and outstanding natural landscape in the Auckland region that can be seen from approach roads and from coastal waters surrounding the east end of Waiheke Island. The proposed site surround on the south side of the main ridge and boulder field is designed to protect the view of the boulder field from the popular sailing waters to the south.

Stony Batter boulders have received more survey and assessment than all the other geological features on Waiheke combined. They were the subject of an ACC Heritage commissioned report by the late Les Kermode (1999), and detailed survey, recording and GPS work by Rachel Prebble (2002-3) who located, described and photographed all the many larger and more iconic boulders. Three days of further survey by the writer accompanied by ACC Heritage staff in 2005 and 2006 identified and mapped the more important and more visual areas of boulders into seven groups, ensuring that areas that had been damaged, cleared and planted in vineyards were left outside the boundaries of the proposed scheduled areas. Each area has been separately evaluated and scored using the listed criteria.

The geology of Waiheke Island was first mapped by Heather Halcrow (1953) and subsequently remapped at 1:63,360 by Jim Schofield of the DSIR (1979). The Thumb Point tombolo and Fort Hill andesitic breccia were identified by these surveys and have been revisited by the writer and evaluated using the criteria in the plan. Fort Hill is a small cliff-top hill at the east end of Waiheke with distinctive steep-sided fort shape. It is composed of Miocene andesitic laharc

breccia which is exposed in the cliff on its eastern side, and indicate the rocks were derived from volcanic lahars associated with eruptions of the Coromandel volcanic arc, before the Firth of Thames subsided. This is by far the best of only two known occurrences of these rocks on Waiheke Island. It provides scientific evidence for the extent of Coromandel volcanoes and of the young age for the subsidence of the Hauraki Gulf. Thumb Pt tombolo is composed of gravel and sand that has been thrown up by the sea in the last 7000 years and linked the island point to mainland Waiheke. It is the least modified and best example of a tombolo in Auckland City and of a gravel tombolo in the Auckland region.

Thus, all the geological features listed for scheduling on the above properties have been thoroughly surveyed, documented and evaluated and meet ACC's criteria for scheduling.