



PH. 07 846 1696 / FX. 07 846 1016
PO. BOX 5187 / FRANKTON / HAMILTON / NEW ZEALAND
WWW.AVALONLTD.CO.NZ

GEOTECHNICAL

Tauranga District Council
Private bag 12022
Tauranga

27 April 2012

For the attention of [REDACTED] s 7(2)(f)(ii)

Dear [REDACTED] s 7(2)(f)(ii)

Mauao Slopes; Monitoring Report for April 2012

This letter is to report on survey benchmark monitoring completed on 14 March and site geotechnical walkover completed on 17 April. Our previous monitoring was in September 2011.

A) Routine work items completed at this monitoring included:

- Discuss developments with Ranger.
- Walkover reviewing slopes from all tracks. Spring flows, slip movements, rockfall evidence, vegetation development etc. Recorded and photograph.
- Laser EDM survey carried out at 6 benchmark group locations on; West, North, East Bluffs and Zone 6.
- Sets of photos from locations A to M around summit for scour monitoring.
- Check previous slip sites re-vegetation, stability and tension crack development.

B) A summary of routine monitoring findings would be:

- No significant rockfall or slip events have been reported to or observed by Ranger staff since the previous monitoring.
- No significant movement of the benchmark surveyed bluffs.
- The 2011 slip scars are in general re-vegetating well.
- This walkover (as usual) found occasional evidence of recent very minor rockfall, which is as would be expected (small rock fragments on tracks & rearrangements on bluff ledges).
- Erosional scour continues as anticipated on steep colluvial ground where there is little vegetation cover and exposed sand.
- The weed spraying operations can locally expose the colluvium to increased scour and, if necessary, should be as controlled as possible.
- Barren sand can scour quickly and exposed rocks on over steep ground above tracks pose obvious risks.

Comments re 2011 rockfall, slips and remediation works

In January 2011 Mauao was subject to prolonged and intense rainfall which triggered numerous slips and rockfalls and resulted in extended closure of many tracks and areas of Mauao.

Significant quantities of geotechnical remedial work were carried out over a number of months and some areas of the base track were not re-opened to the public until August.

Avalon's involvement was limited to the provision of a two person scaling team for three days toward the end of February, to trim some over-steep headscarps above the 4WD track. We had no technical/professional involvement.

Prior to 2011 Avalon had been updating our rockfall and slip risk assessments, taking into account new data as and when possible (i.e. following known rockfalls, slips, flood events, earthquake triggered rockfall etc). This has not been done for the 2011 slips.

New Campground chalets

In May 2009 Avalon was contacted by s 7(2)(f)(ii) of TDC regarding a proposed chalet development in the campground.

Avalon attended a site meeting with s 7(2)(a) and reported in a letter of May 2009 which outlined some of the potential risks (of slip & rockfall) to the proposed sites and advised that they should be looked, evaluated as part of the project and remediated if necessary.

Our monitoring reports between June 2009 and June 2010 included mention that the proposed chalet sites were potentially subject to rockfall and slip risks and that we recommended they should be taken into account when planning the project.

By the time of our visit in February 2011, the proposed chalets were built and in use. We are not aware whether the risk may have been evaluated independently and deemed acceptable?

Major retaining walls behind the chalet cabins have small scarps and indicators of recent ground movement behind them. We assume these walls were designed to retain potential up-slope slips (as per that down near the stone steps?)

If you have any queries please don't hesitate to contact me at any time.

Regards