

Before the Queenstown Lakes District Council

Under the Resource Management Act 1991

And

In the matter of **the Queenstown Lakes Proposed District Plan Stage 3 - Stream 18 – Hāwea**

Summary of evidence of Peter Forrest for Universal Developments (Hawea) Limited #3248

4 August 2020

Submitter's solicitors:

Maree Baker-Galloway | Roisin Giles
Anderson Lloyd
Level 2, 13 Camp Street, Queenstown 9300
PO Box 201, Queenstown 9348
DX Box ZP95010 Queenstown
p + 64 3 450 0700 | f + 64 3 450 0799
maree.baker-galloway@al.nz | roisin.giles@al.nz

**anderson
lloyd.**

Peter Forrest Summary of Evidence

- 1 I provided a statement of evidence for the project site in May 2020 and am familiar with the site and the proposals for its development and rezoning. It is also noted that as a colleague of Fraser Walsh, who attended the hearing in the matter of the SHA, I am familiar with his submitted evidence.
- 2 As the Queenstown manager for GCL, I was responsible for the scoping, reporting and review of the suite of ground investigations undertaken for Universal Developments and LAC Property Trust on Lots 1 & 2 DP 343855 and Lot 1 DP 541414. Whilst these cover the northern area of the wider subject site, the ground conditions encountered are considered representative of the whole site given the nature of the geology and its deposition south of the glacial moraines of Hawea township.
- 3 GCL's reporting provided commentary and recommendations on the ground conditions, natural hazards, foundations for lightweight buildings, stormwater and effluent disposal management in cognisance of the proposed residential development of the area. Stormwater studies were mainly concentrated within the identified SHA area of the site.
- 4 The conclusions from the ground investigations, natural hazard assessment and stormwater testing were as follows:
- 5 Ground conditions are anticipated to be very consistent across the wider site, comprising thin topsoils over recent alluvial materials mantling the late Pleistocene river outwash deposits. These generally comprise dense silty sands and dense sandy gravels.
- 6 Groundwater is interpreted to be at approximately 12m depth based on ORC data set and knowledge of the area through our investigations. Stormwater assessment has demonstrated that the ground conditions are conducive to effective soakage to ground consistent with highly permeable granular soils.
- 7 Natural hazard assessment has not identified any form of hazard that will pose a risk to the proposed rezoning of the site. With respect to seismic activity of the area, the risk is no greater than the surrounding areas and can be mitigated through appropriate geotechnical and structural design.
- 8 With respect to the Gladstone Gap and the mapped overland flow paths from its breach, the information comes from a former Works Consultancy report dated 1994, which is now archived (pers comms with WSP Queenstown/Alexander offices).

- 9 A summary of the report used in an ORC flood assessment for the Timsfield development states that the probable maximum flood level of Lake Hawea would rise to 350.8m at which point the Gladstone Gap embankment would overtop and form an overland flow path downstream as shown on the ORC/QLDC hazard maps for the area.
- 10 The western margin of the downstream overland flow path from such an event is shown to be coexistent with the eastern extent of the project site.
- 11 The Gladstone Gap emergency spillway has been designed for floods greater than the design flood for the Lake Hawea Control Dam (ie greater than the 1:500 annual exceedance probability). Therefore, the likelihood of the Gladstone Gap spillway being activated is extremely unlikely and the risk of flooding in the eastern margin of the site within its design life (1 in 100 years) is very low.
- 12 Without sight of the Works Consultancy report, I cannot comment on the modelling used to determine the overland flow path footprint but can only assume it is based on topographical data. Nor can I make any quantitative comment on the depth or velocity of flood waters across the that may result from an overtopping event.
- 13 However, a reasonable assumption to make is that the severity and impact of the overland flow would increase as you moved east from the margin of the currently mapped path/site boundary i.e. be greatest in its central sections and attenuate towards its western and eastern margins.
- 14 Therefore although the risk from flooding is low along the western margin, development is proposed within the currently mapped path so it would be prudent to recognise the existence of the flood hazard; it would become more determinative of any development if development were to continue further east of the Site. In my opinion the use of the buffer areas within the proposed structure plan provide a logical approach to managing any residual risk at the western margin.

Peter Forrest

4 August 2020