

 report

# **Rotorua Eastern Basin Structure Plan - Development above 340m**

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Prepared for

Rotorua District Council (Client)

By

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## 1 Introduction

Further to our report entitled “Rotorua Eastern Basin Structure Plan” we provide this report taking into account the potential for, and the possible consequences of development above 340m.

It is our understanding that the Rotorua District Council is investigating the possible extension of the reticulated water supply to the Eastern Basin area to include areas above the current limits of 340m. This report identifies what limits, other than servicing constraints, there may be on providing a reticulated supply to higher areas and what (if any) height limit should be planned for. The report then identifies the potential additional demand that may need to be planned for and included into the design of the proposed supply.

## 2 Development Constraints

The key development constraints identified in the Structure Plan Report are:

- ✍ Ecological
- ✍ Landscape
- ✍ Topographical and geotechnical
- ✍ Stormwater management

### 2.1 Ecological Constraints

The Structure Plan already identifies those areas along ephemeral and permanent stream gullies that should be set aside from development. These areas extend above the 340m contour and provide ecological corridors from the lake front to the caldera rim.

The provision for development above 340m is not affected by the identified ecological constraints although they may limit the available area for development.

### 2.2 Landscape Constraints

The report “Lake Rotorua Catchment Landscape Assessment” (2007) by Boffa Miskell, identifies two distinct Landscape Character Areas (LCA) to the east of the Eastern Basin. These are the Eastern Rural Slopes and the Eastern Rural Hills (LCA 7A and 8A respectively). The boundary between the two LCAs is approximately the 370m contour.

The landscape report identifies key landscape management issues common to both LCAs as being:

- ✍ *Loss of rural character*
- ✍ *Riparian management in alignment with Rotorua Lakes Protection and Restoration Action programme including slope stabilisation of Class 7 and 8 steep stream gullies.*

In addition the report anticipates the ongoing demand for rural-residential development on the lower slopes (LCA 7A) in the form of cluster development that relates to site specific physical attributes provided that there are appropriate stormwater, wastewater and earthworks management strategies set in place.

On the other hand the key landscape management issues above the 370m contour (LCA 8A) include slope stabilisation and earthworks, avoidance of built development that may compromise sensitive ridgeline areas, siting development (including access to development) in relation to specific landscape features and vegetation, protecting and enhancing significant areas of existing indigenous vegetation and management of the Tarawera Road corridor.

The Eastern Rural Hills (LCA 8A) are identified as being significantly more sensitive to development, in particular intense development, than the Eastern Rural Slopes, where it is anticipated that rural-residential and rural cluster development could take place subject to management controls.

**The landscape assessment thus provides a key constraint to intense development above 370m with an indication that development below this level to the current limit of development at least (340m), should be managed to take into account site specific matters such as visual impact, earthworks and stability.**

### 2.3 Topographical and Geotechnical Constraints

The Geotechnical section of the report “Rotorua Eastern Basin Growth Study Opportunities and Constraints” (2006) Beca, identifies that slopes over about 20 degrees have marginal stability and should not be disturbed if at all possible.

While there are some reasonably large areas of land of less than 20 degrees slope below the 370m contour the character of the topography changes above 370m so that there are quite limited areas of less than 20 degrees slope. The landform becomes more rugged exposing more potential development areas on ridgelines and making it more difficult to provide access without quite largescale earthworks. While it is possible to mitigate these effects it is more difficult to do so for more intense development, even of the rural cluster type proposed in the Structure Plan for the lower slopes.

### 2.4 Stormwater Management

As the topography changes and becomes steeper in the upper catchment it also becomes more difficult to manage stormwater runoff from more intense development. There is evidence in the lower catchments that the soils are extremely prone to erosion with some drainage channels cut down with steep sides some 4 – 5m.

Development of the higher, steeper, slopes will need to manage runoff from impermeable surfaces within the site so that off-site effects are minimised or at least limited to pre-development levels. This is more easily achieved on a site specific basis rather than within more intense development areas.

### 2.5 Constraints Analysis Summary

In summary there appears to be a distinct change in topography (both in slope and in landform) as well as landscape character at about the 370m contour level that would reasonably be assessed as the limit of more intense development.

Furthermore the area between the current limit of service for reticulated water (340m) and the 370m contour is identified as being sensitive to development depending on the slope, landform and visual impact of the site.

**In response to these constraints limits it is proposed that reticulated water supply may be provided to the 370m contour with controls placed on development between the 340m and 370m contour to enable a transition from the more intensely developed lower slopes to the rural landscape above the 370m contour.**

### 3 Proposed Structure Plan

The Proposed Structure Plan for this area identifies the opportunity for rural cluster development between the 340m and 370m contour subject to (amongst other controls) the provision of private water supply appropriate for the proposed development and in a way that also meets the New Zealand Fire Service Code of Practice.

The effect of providing for rural cluster development in these areas in terms of additional households/population is shown on Figure 1. The two areas affected, Gee Road and east of Basley Road, provide an additional 200 households at an average of 2 houses per hectare of developable land (i.e. land less than 20 degrees not affected by ecological or landscape constraints).

It is not proposed to provide for a transition to the east of the Rotokawa/Cookson Roads Rural Cluster Zone as the facing slopes are more open to views from Lake Rotorua and would impinge to a greater degree on the caldera backdrop.

These proposals do not necessarily limit appropriately designed development above the 370m contour but this should be undertaken as a full discretionary activity taking into account a private supply of water as well as visual and landscape matters and other servicing requirements. The effects of any access roads to the development must also be taken into account.



