

From: "Peter Blackwood" <Peter.Blackwood@boprc.govt.nz>
Sent: Mon, 30 Jul 2018 15:45:45 +1200
To: "Wafa Dine" <Wafa.Dine@rotorualc.nz>
Cc: "Ingrid Pak" <Ingrid.Pak@boprc.govt.nz>; "Peter West (Blue Duck)" <peter.west@blueduckdesign.co.nz>; "Peter Dine" <Peter.Dine@rotorualc.nz>; "Mark Townsend" <Mark.Townsend@boprc.govt.nz>
Subject: 2018-07-30 Peter Blackwood-16 Oakland Place Ngongotaha-Flood Level Advice
Attachments: 2018-07-30 Peter Blackwood-16 Oakland Place Ngongotaha for RLC.pdf
Categories: Red Category

30 July 2018

2018-07-30 Peter Blackwood-16 Oakland Place Ngongotahā-Flood Level Advice

Hi Wafa,

Attached is the design 1% AEP flood level letter. This is complex, as the ground levels in this subdivision have been significantly modified since our detailed Ngongotahā report was completed. Therefore, we have put weight on the observed levels.

Happy to answer any enquiries.

5 Pioneer Place is also completed and will be forwarded very soon.

Peter Blackwood
Principal Technical Engineer
Bay of Plenty Regional Council Toi Moana

P: 0800 884 880 **DD:** 0800 884 881 x9527
E: Peter.Blackwood@boprc.govt.nz
W: www.boprc.govt.nz
A: PO Box 364, Whakatāne 3158, New Zealand

Thriving together – mō te taiao, mō ngā tāngata

Click [here](#) to report this email as spam.

Our Ref: ENG-567775

30 July 2018

Wafa Dine
Rotorua Lakes Council

Wafa.Dine@rotorualc.nz

Dear Wafa

Re: Flood level query – 16 Oakland Place, Ngongotahā

I have reviewed the information we have available for 16 Oakland Place, Ngongotahā. The location of the area investigated by the desktop study is outlined in the attached map. Please note that the area of investigation (highlighted) does not reflect the property boundaries.

The elevation of the land within the property boundary ranges between 285.6 and 286.15 m RL (Moturiki Datum 1953). The map shows the elevation of the land (from the Digital Elevation Model); with the elevation at the property represented by the green colour.

Flood levels of 286.7 m and 286.6 m were recorded in the vicinity of this property in the flood of 29 April 2018. The interpolated flood level at the property is 286.66 m. This flood is currently assessed as being slightly larger (8% larger in peak discharge) than the 1% AEP (100 year return period) flood, with the flood level at this property an estimated 100 mm higher than that which would have been experienced in a 1% AEP flood. Thus the equivalent 1% AEP recorded level would be around 286.56 m.

Flood level

Based on the document “Addendum to Operations Report 2005/10: Hydraulic Modelling of the Ngongotahā Stream; Incorporation of Newly Available Aerial Survey Information, 27 April 2007”, the:

- 1% Annual Exceedance Probability flood level is 286.45 m RL (Moturiki Datum 1953).

This level includes an allowance for estimate imprecision and phenomena not explicitly included in the calculations. The modelling results also should incorporate an estimated increase in level of 300mm to account for a climate change allowance of a 3 degree increase in temperature to 2118. Policy states that climate change should allow for a 100 year timeframe.

However, we are mindful that the recorded flood level of 286.66m is higher than the “current” estimated level of 286.45 m inclusive of an allowance for estimate imprecision and phenomena not explicitly included in the calculations. A significant part of this increase is because **the contour of the land has now been modified** and flood levels are also “held up” by the contour of the land and vegetation east of Oakland Place. Consequently, our recommended 1% AEP flood level is based on the observed level adjusted for the flood size and climate change.

BOPRC ID: A2928652

Thus the recommended:

- **1% Annual Exceedance Probability flood level is 287.36 m RL (Moturiki Datum 1953).**

This level includes an allowance for estimate imprecision and phenomena not explicitly included in the calculations. The above flood level has also incorporated the estimated increase in level of 300 mm to account for a climate change allowance of a 3 degree increase in temperature to 2118.

Even if the dwelling was sufficiently elevated above flood waters, access to the dwelling during a flood situation may be significantly compromised.

Additionally, if an identified house site is located within an overland flow path, the design 1% AEP flood level should be set a minimum of 0.5 m above general ground level and the building should not obstruct any existing flow paths. This level includes an allowance for estimate imprecision and phenomena not explicitly included in the calculations. This requirement is not applicable to those house sites located on ridges.

This is not a guarantee that any new dwelling will not be affected by flooding. It is also possible that in the future, the flood levels may be superseded by more up-to-date information. The information in this letter is valid for one year from the letter date.

Minimum Floor Level

Minimum Floor Levels are set by Councils with consideration to the New Zealand Building Code, the Resource Management Act, the applicable District Plan and the latest information available. Please contact Rotorua Lakes Council for the Minimum Floor Level for this property.

Please contact me if you have any further questions.

Yours sincerely

Peter Blackwood
Principal Technical Engineer

