

Script for 2 x 5 = 10 minute presentation to Whaitua Committee, 11/12/19 - FINAL

## Introduction

To the Co-Chairs and Members of the Whaitua Te Whanganui a Tara Committee, we are grateful for this opportunity to talk with you today about GWRC's baseline flood modelling and flood maps for Pinehaven. Thank you.

This is Alex Ross, a retired Civil Engineer and Pinehaven resident who has carried out infiltration tests in the Pinehaven catchment and authored an Infiltration Report of the findings.

Joining us today on speaker phone is Bob Hall in Timaru who has visited the Pinehaven catchment and authored a recent peer-reviewed report on his findings regarding GWRC's baseline and future development modelling and mapping for the Pinehaven catchment.

My name is Stephen Pattinson, a Pinehaven resident and spokesperson for Save Our Hills (Upper Hutt) Inc., the Society which has commissioned these recent reports. We have also documented the storm and flood extents in Pinehaven that just happened on Sunday (8-12-19) and we will compare this with the GWRC flood hazard extent maps for Pinehaven.

1.

**Computer models can predict how much rainfall is likely to run off a catchment during a storm, but the model must accurately reflect the nature of the catchment it is representing.** GWRC's Pinehaven model does not reflect the existing catchment. It doesn't model the bush-clad hills as they are, highly absorbent, like a giant sponge, soaking up lots of rainwater. Instead, the model assumes the hills are "exceptionally impervious", like concrete, so it predicts vast amounts of rainwater running off the hills during a storm, causing extensive flooding – just like GWRC's Pinehaven flood maps show! Lots of properties are being shown in a 100-year flood zone. But they wouldn't be in a flood zone if the model represented the existing catchment correctly.

Imagine two tennis courts, one lawn, the other asphalt. Imagine rain falling on the two tennis courts – what is going to happen?

The lawn court will absorb the rainwater, but the rain will all run off the asphalt court.

Now scale up the tennis courts to the size of the hill sub-catchments. What's going to happen now when it rains?

(Sponge demonstration) – GWRC's baseline model is the concrete hills.

Infiltration is a significant component of hydrologic processes. Soils have varying capacities to infiltrate water, influencing factors are soil type, degree of saturation, and nature of ground cover. Activities that change the soil surface or alter its

properties also have an effect. The forest and bush areas around Pinehaven have a large infiltration capacity, as determined by field tests. This means that the runoff from these areas is a lot less than from the urbanised areas of Pinehaven and Silverstream. A lot of the infiltrated rainfall feeds the streams for many days after a rainfall event thus keeping the stream communities healthy. Also with less runoff the peak flood volume is reduced.

2.

Some might say that it's a good thing that GWRC's Pinehaven flood maps are showing some extra volume – they're just being conservative. Exaggerated flood extents on the flood maps provides a factor of safety.

No. Just the opposite. These are supposed to be baseline flood extents, but they are grossly inflated. Inflated baselines will mask extra runoff from any future developments and will make hydraulic neutrality rules ineffective.

For example, because GWRC's baselines are grossly inflated, what happened when GWRC modelled a large-scale future development scenario on the Pinehaven hills? Less than 1% extra runoff showed up. If the baseline modelling had been accurate then at least 300% extra runoff would have shown up, extra runoff that would have to be controlled by the developer not the Council.

Due to GWRC's inflated baseline model, if development gets built on the hills then in a big storm we will see a wall of water sweep down through Pinehaven.

Even smaller storms will cause bigger floods more regularly, increasing erosion, washing more sediment and contaminants into our waterways, and depleting groundwater and base flows.

It's a disaster waiting to happen.

Some might say that's exactly why UHCC has just adopted hydraulic neutrality rules into the District Plan, to ensure future development doesn't make flooding worse.

And they'd be right, except for one thing. Those hydraulic neutrality rules will not protect us from worse flooding because the inflated baseline model will mask the extra runoff – vast amounts of it, thousands of tons, water with great destructive force charging uncontrolled through our properties!

3.

GWRC and their consultants have made a gross mistake with the Pinehaven baseline flood modelling. But we're not scalp hunting. We all make mistakes.

Some might say GWRC already fixed the mistake when Jacobs reworked the flood model in 2016. They didn't fix it. They didn't even address it!

There is only one solution, and it is not hard. Correct the baseline model. Ensure the baseline model accurately reflects the true nature of the existing catchment.

Consequences flow from the incorrect baseline model:

The model and hydraulic calculations for a 25 year storm on which the proposed stream flood protection work is based will be inflated.

What follows on from these calculations are the design of the flood alleviation works, and as a consequence these will also be over engineered.

As a result public funds will be overspent and ratepayers money wasted, also habitat destruction will be increased unnecessarily.

Don't wait for this to happen before you request GWRC to fix the baseline model.

The recent rainstorm of 8th December proves that the baseline flood maps are incorrect and are grossly exaggerated. This storm also vindicates the peer reviewed report by R. J. Hall and Associates Ltd.

In conclusion we request that GWRC fix the Pinehaven baseline model and flood extent maps before we spend extra money unnecessarily on the proposed flood works and cause more habitat and property destruction through inflated baseline modelling.