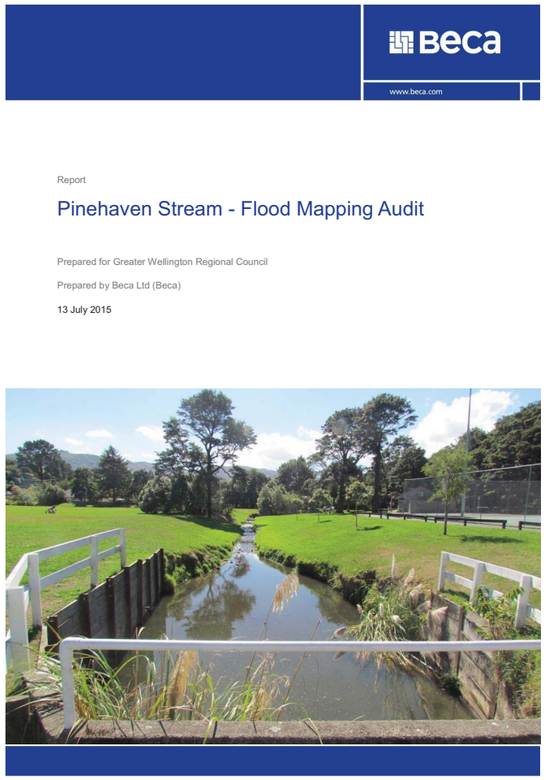
MAJOR FLAW ACKNOWLEDGED BUT DISMISSED WITHOUT BEING RESOLVED

"SOH's concerns are upheld that the effects of future development on flood extents are not modelled correctly. … However, the flood maps are unlikely to be … affected by this apparent anomaly." p17


Beca

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Report

Pinehaven Stream - Flood Mapping Audit

Prepared for Greater Wellington Regional Council

Prepared by Beca Ltd (Beca)

13 July 2015

BECA's FALSE AUDIT USED BY COUNCILS TO SUPPRESS TRUTH ABOUT FLOOD MODEL!

Greater Wellington Regional Council (GWRC) and Upper Hutt City Council (UHCC) 'froze' submissions in 2014 consultations on GWRC's draft Pinehaven Floodplain Management Plan and UHCC's Urban Growth Strategy (UGS), the majority of which challenged the credibility of the flood modelling and opposed Guildford development on Pinehaven hills because of concerns about the reliability of GWRC's baseline flood model for ensuring such development would achieve 'hydraulic neutrality'. Beca's audit July 2015 failed to resolve the flaw submitters were concerned about and found the flood model 'fit for purpose'.

The above consultations were then run again in Oct 2015. GWRC refused submitters' majority request for a further investigation of the major flaw in the flood model, and UHCC disqualified 403 out of 508 UGS submissions (80%) which continued to oppose Guildford development on the Pinehaven hills. UHCC then put the Guildford development into its 2016 Land Use Strategy and used Beca's false audit report [and false claims by the Beca auditor at the 2017 UHCC Plan Change 42 (PC42) Flood Maps Hearing that subsequent re-working of the Pinehaven flood model by Jacobs had rectified the flaw in the flood model when Jacobs didn't even address it let alone rectify it] to support the adoption of the flood maps into the UHCC District Plan. In the PC42 appeal, the Environment Court failed to provide a process to enable this major flaw in the flood model to be addressed and resolved. This flaw in the flood model still exists.

'TRAFFIC LIGHT' RATING SYSTEM USED IN THE AUDIT

"Elements of the modelling have been reviewed … and rated using a 0-3 scoring system (described in Table 4.1), which flags up issues that will affect model use." P4

Table 4.1 – Model review rating scheme

Description	Audit rating	Fit for use
No issue: The element or parameter being reviewed is modelled acceptably	0	Yes
Minor issue: There is an issue, but it is unlikely to significantly affect model results	1	
Major issue: Failure to resolve the issue compromises the model and should be rectified, but may be resolved by explanation or acceptance of model limitations.	2	?
Fatal flaw: Failure to resolve this issue severely compromises the model, and should be rectified before the model is accepted.	3	No

FUTURE CASE SCENARIO – FLAW IS A MAJOR ISSUE – MODEL NOT FIT FOR USE

"There is no post-development increase in flood volumes. This is unexpected given the increase in impermeable area [i.e. asphalt roads, steel roofs and concrete driveways replacing forest]*." p9*

Future development	The upper parts of the Pinehaven catchment are bush and forestry. Sub-division development has been mooted for these areas and it could be expected that there would be some infill development in the lower parts of the catchment. While not pre-judging the outcome of any application to develop within the catchment, it is prudent to assess the effects of possible future development when undertaking flood mapping and hazards studies. To that end, SKM ran the model with reworked hydrographs to represent the additional impervious area associated with the development of 1665 lots of 750 m^2 in the upper parts of the catchment. This is probably an over-estimate of the number of lots that could be developed, and as such represents an upper bound on the effect of development on catchment flows and flood extents. Given that the upper catchment is steep, natural runoff could be expected to be quite high and so the relative effect of development would not be great. Were development to occur, mitigation measures would almost certainly be required to attenuate flows and at least reduce peak flows to existing conditions. As noted in Section 8 below, including future development increases modelled peak flows by 18% in sub-catchment B and 13% in sub-catchment E. However, there is no post-development increase in flood volumes. This is unexpected given the increase in impermeable area. MWH were unable to provide an explanation for the lack of increase in flood volume, and so the future development runs of SKM's flood model are potentially compromised in this regard.	2	No

AUDITOR FAILS TO DISCLOSE AND RESOLVE KNOWN CAUSE OF MAJOR FLAW

One month before publishing the audit report the auditor learnt from MWH the reason why there is no increase in flood volume when 1,665 dwellings replace forest on the hills, quote: *"If the initial and continuing [rainfall] losses are the same in both [pre-development and post-development] models, then the flood volumes will be the same." Beca to MWH, 11 June 2015*

BUT In the audit report the auditor failed to disclose this explanation and resolve the major flaw, stating instead: *"MWH were unable to provide an explanation for the lack of increase in flood volume." p9 "MWH have not provided an explanation as to why there is no increase in future development flood volumes." p17 "MWH … have not been able to provide an explanation as to why there is not an increase in flood volume." p27.* MWH DID PROVIDE THE EXPLANATION BUT THE AUDIT REPORT DIDN'T DISCLOSE IT.