



## FILE NOTE

DATE 20 April 2020  
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SUBJECT Pinehaven pre-hearing notes  
FILE NUMBER WGN200083

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On 20 April 2020 at 7pm a virtual pre-hearing meeting for the Pinehaven Streamworks Improvement Resource consent and Notice of Requirement was held.

### Attendees:

Lindsay Daysh – Facilitator

Kirsty Van Reenen – Team Leader, Greater Wellington Regional Council

Josie Burrows – Resource Advisor, Greater Wellington Regional Council

Claire McKevitt – Senior Resource Advisor, Greater Wellington Regional Council

James Beban – Consultant Planner for Upper Hutt City Council

Tristan Reynard – Project Director, Wellington Water Ltd

Ben Fountain – Stormwater Advisor, Wellington Water Ltd

Nicky McIndoe – Counsel, Dentons for Wellington Water Ltd

Helen Anderson – Planner, GHD for Wellington Water Ltd

### Submitters

Save Our Hills (SOH) Group – represented by Steven and Sue Pattinson, Darryl Longstaffe and their expert engineering witness Bob Hall.

Peter and Rosalyn Ross

Alexander Ross

Robyn Hickson

### Key Issues discussed

- Submitter Robyn Hickson, whose property is regularly affected by the flooding would like the project to proceed as quickly as possible. The existing flooding is causing undue stress, both due to financial and health implications. In their opinion, over engineering is not necessarily a concern as it is better than no stream works upgrades being undertaken.
- Save Our Hills (SOH) members are concerned that the changes to the hydraulic model that the applicant is about to undertake will not address their issues which are with the hydrological model. The issue they have with the hydrological model is that the infiltration rate used

assumes no infiltration, too much rain and an oversized catchment, resulting in over engineering of the stream upgrades.

- The concern SOH member have with over-engineering of the model is that if future development is to go ahead within the catchment (ie. the Guildford Development), the developers would not be required to undertake additional storm water mitigation as the stream upgrade would already provide enough flow for that development.
- This means by undertaking these works at this scale now the UHCC (funded by the ratepayers), is compensating future private development.
- Further, because no streamworks are proposed for the upper catchment, there is fear that should new development occur higher up in the catchment, this may exacerbate the existing flood issues in the upper catchment. Noting that these aren't currently as bad as the flooding issues in the lower catchment which this project is to target.
- SOH members would like expert conferencing to go ahead, but only if it's multi-disciplinary, including the flood modellers/hydrologists as well as urban design experts to account for infiltration from hypothetical development.

#### Specific Information requests

- SOH members would like to see modelled stream flows, not just designed AEP's. In particular for a 1 in 25 year flood event.
- Peter and Rosyln Ross would like clarity as to what works are being undertaken on their property, with updated drawings. They also questioned whether the proposed width of the stream through their property was necessary.
- SOH sent Kirsty an email with requests to be included in the scope of the re-run of the hydraulic model. This was provided to the applicant. The applicant will consider these requests and provide a response.
- WWL to provide a response (via GWRC/UHCC) to SOH in regard to their requests about the flood model comparison to the December 2019 flood event.
- Clarification is required from WWL as to what infiltration has been used in the hydrological model, why this is considered appropriate and realistic of the baseline (and not future development).

#### Recommended Next Steps

- The applicant undertakes the discussed hydraulic model updates
- The updated model results and related flood hazard assessment is shared.
- The pre-hearing meeting for SOH and the flood experts is arranged.
- Expert conferencing is undertaken to clarify matters of contention in the model if any.

Attachment – Save our Hills record of pre-hearing meeting

## **Pinehaven Streamworks**

Submitter Questions Unanswered at Pre-Hearing Meeting held 20 April 2020, 7-9pm

**Present:** (Meeting held on Zoom)

Lindsay Daysh (LD) – Planner (Facilitator)

James Beban (JBn) – Planner (Urban Edge Planning Ltd, contracting to UHCC)

Helen Anderson (HA) – Planner (GHD, contracting to Wellington Water Ltd)

Claire Baldwin (McKevitt) (CMcK) – Planner (GWRC, Environmental Regulation)

Kirsty van Reenen (KvR) – Planner (GWRC, Team Leader, Environmental Regulation)

Josephine Burrows (JBs) – Environmental Scientist (GWRC, Resource Advisor)

Tristan Reynard (TR) – Civil Engineer (Wellington Water Ltd, Project Manager)

Ben Fountain (BF) – Environmental Engineer (Wellington Water Ltd, ex-SKM/Jacobs)

Nicky McIndoe (NMcD) – Lawyer, Dentons Kensington Swan (for Wellington Water Ltd)

### Submitters:

Robyn Bruce (Hickson) (RH) - Resident, Silverstream

Peter and Rosalyn Ross (PR, RR) - Residents, Pinehaven

Alex Ross (AR) - Resident, Pinehaven

Darryl Longstaffe (DL) - Resident, Pinehaven (SOH)

Steve, Sue Pattinson (StP)(Sue)-Residents Pinehaven (SOH)

Bob Hall (BH) - Civil & Structural Engineer, R J Hall & Assoc. Ltd (for SOH)

### Stance/Request:

Support/Grant application

Oppose/Decline application

Oppose/Decline application

Oppose/Decline application

Oppose/Decline application

### **Introduction:**

Refer to email 24 April 2020 to CMcK (GWRC) from submitters StP, Sue, DL, AR, PR and RR explaining why we prepared this record of the meeting. We weren't able to contact RH (her contact details are redacted in her written submission) so we haven't included her concerns. However, we did listen carefully in the meeting to her concerns and we understand them.

The Agenda for this pre-hearing meeting which submitters received 17/4/20 was:

1. Welcome/Introductions
2. Purpose of pre-hearing meeting and ground rules
3. Discussion on key issues raised from submissions
4. Next steps/options
5. Closing and agreed actions

LD (Facilitator) read out an official 3-fold purpose for this pre-hearing meeting:

1. To explain procedural and substantive matters (?)
2. To clarify what the proposal entails
3. Opportunity for Applicant/Councils to better understand submitters' concerns

The meeting started 7:08pm (approx.) due to time taken for everyone to log into Zoom. During the first 1/2 hour of the meeting we heard from LD, BF and NMcD about procedural matters, why the project is needed, what the proposal entails, and the Consenting Authority (GWRC) request to the Applicant (UHCC) for 'further information' requiring re-run of model.

NB: WWL is the Agent for UHCC. WWL is represented tonight by TR, BF, HA and NMcD. UHCC is also represented by JBn, and the Consenting Authority (GWRC) by CMcK, JBn, KvR.

## Key quotes - submitters Pinehaven Streamworks Pre-Hearing Meeting 20-4-20:

*"We've been living here for nearly 40 years, so we've seen floods lots of times. We thought the size of the channel [WWL] discussed with us on site must be for a 100-year flood! But it is only for a 25-year flood. The 8<sup>th</sup> December was a 25-year flood, and [the stream] only just overtopped the existing banks. ... The overtopping is mainly caused by the water channel being narrowed through the vertical concrete block [stream channel] walls built by the residents of No 12 Birch Grove. When the increased current hits their vehicle bridge it causes the water trapped by the bridge to then gush out underneath it and overflow our bank."*

*Peter and Rosalyn Ross, Pinehaven*

*"[Your] analysis for the engineering of the streamworks is wrong. It has been over-engineered. What we've found out about the hydrology right back at the very beginning of the [Pinehaven flood management] project is that [stormwater runoff in the catchment] is grossly exaggerated. And the reason it is grossly exaggerated - the runoff is grossly exaggerated - is because the inputs [in the hydrological model] assume the catchment is 'exceptionally impervious'.*

*[GWRC modelled] the catchment, the existing forest - the catchment is 80% forest - as if it's impervious. The forest is not impervious. The forest has a massive infiltration rate, which we know because we have done infiltration tests in the forest. It has a very high infiltration rate. But the [hydrological] modelling that's been done by ... MWH [for GWRC] assumes virtually no infiltration, just a tiny, tiny bit of infiltration, with the bulk of the rainwater running off the hills.*

*So [the hydrological model] doesn't represent the existing situation at all correctly. [Your re-running of the hydraulic model now] is all just a waste of time [and money], all this tinkering with the hydraulics, because the inputs right at the very beginning in the hydrological model [are seriously wrong]."*

*Stephen Pattinson, M. Arch ANZIA Registered Architect [Save Our Hills]*

*"The hydrology is a major issue. ... [You] can avoid making the same mistake again. ... The value [in the hydrological] model is 2mm/hr for infiltration [in the forested hills] in the catchment. I've done tests up [in the forested hills] in the Pinehaven catchment and the [infiltration] is something like 500mm/hr. Are you going to fix the hydrology before you re-run the model? ... [Response: No] So, you're telling me the model is going to be re-run using those wrong [infiltration] parameters. ... If the modellers are not going to look at those parameters, what's the point of re-running the model?"*

*Alex Ross, Pinehaven, Retired Civil Engineer*

*"Why wouldn't you be [willing to look at the hydrology]? There's millions of dollars at stake here, there's people's properties at stake here, there's flood[ing], so why would you not be willing to [look at the hydrology]? ... We want more transparency ... multi-disciplinary discussion ... why are [you] people so afraid of that?"*

*Susan Pattinson, Pinehaven (Save Our Hills)*

The following table lists submitters' concerns / questions raised at the meeting (listed generally in the order they were raised), and responses received from the Applicant.

	<b>Question / Concern from Submitters</b>	<b>Applicant Response</b>
<b>1</b>	(PR) What size flood is the streamworks designed for, a 100-year flood or a 25-year flood?	BF: a 25-year flood
<b>2</b>	(AR) (StP): the model re-run; are you re-running the hydrological model, or the hydraulic model, or both?	<p>JBn: just the hydraulic model (not the hydrological model).</p> <p><i>NB: we can't accept JBn's response – the subject matter is outside his area of expertise, and his response seems contradictory. On the one hand he said the re-run involves increasing climate change allowance [which involves an adjustment to rainfall in the hydrological model], but on the other hand he said they are not re-running the hydrological model. JBn is not qualified to answer the question, and so it remains unanswered.</i></p>
<b>3</b>	(AR) (StP) Objected strongly to NMCD's comment that submitters concerns about hydrology have already been addressed in the 'further information' responses [notified Feb 2020] and therefore will not be addressed in the modelling re-run. AR / StP said that the notified 'further information' fudged the issues and does not address our concerns at all: <b>the hydrology is still a major issue. The hydrology of the catchment is not modelled correctly</b> – infiltration is too low, so runoff is too large, therefore flood extents are inflated, consequently the streamworks are over-engineered and unnecessarily expensive for ratepayers. It all begins with the hydrology. If the hydrology is wrong then everything that follows is wrong. Tinkering with the hydraulic model does not fix the hydrology. In the hydrological model the catchment is assumed to be "exceptionally impervious" – it isn't. It has very high infiltration capacity, determined by field tests. <b>Will you be fixing the hydrology BEFORE you re-run the model(s)?</b>	(LD) Will the submitter's concerns [about the hydrology] be addressed in the model re-run? (NMCD) – No.

4	<p>(AR) – So you’re saying the model is going to be re-run using the wrong parameters. The [hydrological] model is an ‘initial loss’ and ‘continuing loss’ model – it assumes only 5mm and 2mm/hr respectively. AR has done infiltration tests up in the forest and the continuing losses are something like 500mm/hr. If the modellers aren’t going to look at the infiltration inputs then what’s the point of re-running the model? Why make the same mistake again?</p>	<p>(NMCD) These are matters for the modeller to discuss.</p> <p><i>We don’t accept this response. Representing the hydrology of the catchment correctly is not optional.</i></p>
5	<p>(LD) What is the scope of the modelling re-run?</p> <p><i>Does JBN’s reponse give the full scope of the re-run of the model? Please advise/confirm.</i></p>	<p>(JBn) – to look at the impact of doing the following:-</p> <ul style="list-style-type: none"> <li>• Adjusting the climate change allowance</li> <li>• Moving bridges</li> <li>• Adjusting some culvert roughness coefficients</li> <li>• Adjusting some banks</li> </ul>
6	<p>(Sue) Why would you not be willing to talk about the hydrology? There’s \$millions at stake here; peoples’ properties at stake; flooding; so why would you not be willing to talk about getting the hydrology right?</p>	<p>(no response)</p>
7	<p>(StP) The RC Appn &amp; NoR document [p109, <b>Figure 26: Difference in Flood Depth in a 1% AEP Event Following Completion of the Project</b>] indicates significant reduction in flooding due to the stream improvements, but the public was informed by GWRC, at a 2014 meeting in Pinehaven, the streamworks will make no difference to the 1-in-100 year flood maps. Can you clarify this?</p>	<p>(no response)</p>
8	<p>(StP) Why aren’t you quantifying the flows that you are designing the channel capacity for? Sure, use % AEP for insurance puposes, but you should be transparent about the flows (in m<sup>3</sup>/s) that you have designed the channel capacity for. We can’t find anywhere in the notified documentation flows and channel capacities quantified in m<sup>3</sup>/s. Can you make this transparent by quantifying channel flows?</p>	<p>(no response)</p>
9	<p>(StP) The forested hills have been modelled as being impervious, as if they are covered in concrete. Because of this serious flaw in the hydrological model the flood maps have been created on the assumption that virtually all the rainfall runs off the hills, which it doesn’t, and so the flood maps are grossly inflated. (RH) Why is that your concern? (StP) Becasue this is the baseline model that will be used to assess future dvelopment on the hills for hydraulic neutrality. (StP) strongly objected to BF’s suggestion.</p>	<p>(BF) Suggested to get an undertaking from UHCC / GWRC / WWL that the existing hydrological model will not be used by them to assess future development for hydraulic neutrality. They will get the developer to do their own pre- and post-development run-off assessment.</p>

10.	(StP) What is the point of UHCC and GWRC having just spent \$millions of ratepayers' money creating a baseline hydrological model and then not use it?	(BF) We'll get the developer to do a baseline model at their own cost.
11	(StP) So you're saying the \$millions already paid by ratepayers for a baseline model will be for nothing?	(no response)
12	(StP) You've produced a baseline model at ratepayers expense that is seriously flawed, it is grossly inflated, and needs to be corrected. Until you correct it the PC42 hydraulic neutrality rules will not be effective – the inflated baseline model will mask huge quantities of additional unmitigated runoff from large-scale future development on the hills, relieving the developer of huge stormwater management costs, and affecting everybody in the catchment – bigger floods, more regular floods, and bigger slips. When SKM modelled the impact on flooding from unmitigated runoff from 1,665 new houses on the hills in the upper catchment in their 'future case scenario', how did they come up with the answer that there would be almost no increase in flooding?	<i>StP expressed this all as a statement, but we are now putting this to the Councils as a question: how did SKM / GWRC / Jacobs come up with the answer in their 'future case scenarios' that the impact on flooding from unmitigated runoff from new houses on the hills in the upper catchment would be almost nothing, that there'd be no significant increase in flooding?</i>
13	<p>(AR) Why are the streamworks not addressing flooding issues in the upper catchment, eg</p> <ul style="list-style-type: none"> <li>• Undersized culvert at 122 Pinehaven Rd</li> <li>• Several other issues in upper catchment that are not being looked at – the streamworks only start at the bottom of Pinehaven Reserve</li> </ul> <p>(StP) – No, the upper catchment is part of this project. Its our rates [ratepayers in upper catchment] you are using on this project too [the cost of which has stealthily jumped from \$10M to over \$40M].</p> <p><i>BF's answer is unacceptable. In public open days (2012 and 2014) on proposed streamworks, we were told that when the streamworks are done, our problems in the upper catchment will go away. But they are not going away in this streamworks plan, so why aren't they being fixed? There has certainly been no previous indication from GWRC the streamworks were only to benefit the lower catchment.</i></p> <p>So why are the streamworks not addressing flooding issues in the upper catchment?</p>	(BF) This project is from Pinehaven Reserve down. An upgrade in the upper catchment would need to be a separate project.
14	(AR) There's been 4, 5 maybe 6 significant floods in the Pinehaven Stream since you did your modelling [in 2008 – 2010]. But nowhere have you have a flood	(no response)



	<p>gauge keeping records of flood volumes of the water coming down so that you could look at the gauge and see what the actual flow was. You need to do better research before you spend ratepayers money.</p> <p>(StP) You had a depth gauge in the stream but GWRC took it out in 2013. You've missed 7 years of data, stream flow record. Why did you remove the gauge?</p>	(no response)
15	<p>(PR) There is a lack of clarity in the [streamworks] drawings. For instance, where the channel passes through our property the drawings just say "Details of channel geometry to be confirmed". So I don't even know what you are doing on my property. How can I say if I'm objecting to it or approving it if I can't see what you are doing?</p> <p><i>[Jacobs' 'Typical Cross-Section' drawing (CH 0 - 120) of the proposed channel through PR's property shows vertical sides which are to be constructed with "sheet piles" (trapezoidal profile steel interlocking sheets). But PR was informed on site by WWL representatives that the channel on his property will be 'riprap' (raking banks covered with rocks). Furthermore, the drawing has no dimensions on it and no 'Scale Bar', just a footnote saying "Scale 1:100 @ A3 size" which may be unclear to many people. At A3 size the channel on PR's property scales at about 6.4m wide (up from the existing width of about 2.5m)]</i></p> <p>(SP) It seems to me WWL is not being clear about the channel geometry and construction because they don't want to be transparent about the volume of flow they have designed the channel capacity for.</p>	<p>(BF) We will do everything we can to provide clarity to you.</p> <p>To which PR replied: If you know what the channel is, and you've determined it, then why don't you upgrade your drawings?</p> <p>(no response)</p>
16	<p>(LD) There is a disparity between what the submitters are saying and what we have heard from the Applicant ... there is a feeling [from submitters] that the model isn't 'fit for purpose'. ... we [need to] get the hydrological experts together to discuss whether the model is 'fit for purpose' ...</p> <p>(Sue) We request expert conferencing to be multi-disciplinary ...</p> <p>(Sue) It's not the Pattinson's request, its Save Our Hills [SOH] and the wider community ... who have had 300 and 400 [strong] submissions and petitions thrown out [by the Councils] and taken no notice of. We [the community] have been treated appallingly ...</p>	<p>(NMCD) I've already said that we would support technical flood modelling expert witness conferencing</p> <p>(NMCD) I heard the Pattinson's request for multidisciplinary conferencing – I wouldn't support that.</p>

	<p>So we would like a lot more transparency than expert conferencing [behind closed doors].</p> <p>(StP) The issues are multidisciplinary (impervious footprints of various development scenarios, and the stormwater runoff from impervious percentages of pre- and post- development land use) so the discussion needs to be multidisciplinary, and that doesn't have to be expert conferencing. Why not an 'Alternative Dispute Resolution' process / mediation?</p>	(no response)
17	<p>(StP) [in response to suggestions that the issue is about future Guildford development that currently has no planning status and therefore no bearing on the present Application, or that we are trying to change UHCC's already-adopted Plan Change 42] Our core issue is <u>not</u> about Guildford, and it is <u>not</u> about PC42. We want you to get the hydrology right.</p> <p>(StP) Right at the core of our submission is a piece of work which GWRC did called the 'future case scenario' (2010, 2016). It looked at development on the hills, and what the effect of that would be on flooding down here in the valley. ... It was a hypothetical exercise that revealed a gross flaw in the baseline model.</p> <p>(StP) ... those flood experts [will be] talking away in their own bubble about hydrology and hydraulics, but can't talk about the hypothetical developments that are [generating the inputs] they are mulling over [because the various configurations of hypothetical developments are outside flood engineers expertise] ... it's the hypothetical developments that revealed the hills have been modelled as if they are sheathed with concrete or as if they are sheathed with plastic. Now why wouldn't you fix that?</p> <p>(StP) We have put peer-reviewed expert evidence [that shows that it is true] in front of the Councils and they have refused to sit down and talk about it. We've given to the Commissioners a log of the last 6 months of all the attempts we have made to talk with the Councils about this expert evidence, which has been peer-reviewed by another expert, but the Councils refuse to engage.</p> <p>(StP) Yes, so you can restrict discussion to [one half of the expertise required to understand the problem</p>	<p>(LD) And to get the right baseline model, you get the right hydrological experts together ...</p> <p>(JBn) We've always been happy to put the expert witnesses in a room and have expert conferencing.</p> <p>(LD) Look, BF told us before that that isn't true!</p> <p>(JBn) That's why we want to have expert conferencing now [for flood engineers] ... We're all for it.</p>

	<p>and keep the other half out of the discussion so that the problem won't be fully investigated and resolved]</p> <p>Will you look at that hypothetical future development exercise to see what the problem is with the baseline model?</p>	
<p><b>18</b></p>	<p>(Sue) Will all the experts meet with us before the hearing so we can discuss our findings and reports and ground-truthing information?</p> <p>(StP) What Sue is asking about is that we understand we are having our own separate pre-hearing meeting with the experts.</p> <p>(StP) It has already been agreed [see KvR's email]. We ask that you bring a hydrologist, a hydraulic engineer, an urban designer or architect or someone familiar with multi-unit development.</p> <p>(StP) That's the problem ... the [modelling and] re-modelling [WWL] is doing ... you're just tinkering with stuff in the hydraulic model ...</p> <p>... if you don't come to our separate pre-hearing meeting willing to engage on the issues that we have made very clear to you about the hydrology then what is the point of holding a pre-hearing meeting?</p> <p>(StP) Its a very limited offer. ... I can see why you are limiting it, because you don't want to talk about the real issue.</p>	<p>(LD) That is really up to the Applicant to agree.</p> <p>(NMCD) Those people aren't going to be involved. We'll have WWL's flood modeller who undertook/supervised the flood modelling [for the stream improvements]</p> <p>(LD) I think WWL has made the offer to have a meeting with you with the experts involved – that would be beneficial I think <u>after</u> this latest round of modelling has been run. Now that needn't be confined to the outcomes of that modelling. You can discuss your wider concerns ... that the modelling in your view doesn't have the right inputs. ... If there are still concerns between the experts about the model they should conference.</p> <p>(NMCD) That's the offer.</p>

	<p><i>Will WWL's stream improvements modeller(s) be familiar with MWH's hydrology (2008/2009), SKM's 'future case scenario' modelling error (2010), Beca's investigation of that error (2013) &amp; Jacobs' reworking of that error (2016) which WWL have inherited?</i></p>	<p>(NMcD) the concerns you've got about the hydrology inputs into the model, [WWL's] modelling experts can discuss them with you.</p>
<b>19</b>	<p>(StP) What is the point of comparing flood extents on 8 December 2019 with GWRC's 10-year and 100-year modelled flood extents?</p> <p>(StP) According to the Application, the streamworks are designed for a 25-year flood, so why would you not compare flood extents on 8 December 2019, which was a 25-year event or thereabouts, with your modelled 25-year flood extents?</p> <p>(StP) Could you please include a comparison with modelled 25-year flood extents so we can see how your 25-year modelled extents compare with what actually happened in the 8 December 2019 event?</p> <p>(AR) Will you do this before you re-run the model?</p> <p>(StP) If not, then could you please provide an explanation as to why not, because the streamworks is for a 25-year event?</p>	<p>(no response)</p> <p>(no response)</p> <p>(NMcD) We have passed that request on to our flood modelling expert and we will get back to you on that.</p> <p>(NMcD) We're happy to provide a response ... about whether that modelling can occur or not. We're trying to work out whether that should be within the scope of the model re-run which is going to occur.</p> <p>(LD) That sounds reasonable (NMcD) Yes</p>
<b>20</b>	<p>(Sue) The processes are not friendly to the community. If you're hearing a bit of frustration ... it's because it's not a level playing field, it's not equal power ... There has been zero engagement from the Councils [UHCC and GWRC].</p> <p>(Sue) It's not just about saying you've given us a chance to be heard ... will you provide a more transparent process, and more engagement with submitters by the Councils?</p>	<p>(LD) It's a common issue that is raised by a lot of people ... the RMA process can be intimidating, there's a feeling you're not being heard ...</p>

## Submitted questions for which we are still awaiting answers:

- *We would like to suggest ... having our own **multi-disciplinary** pre-hearing meeting or **mediation** (without all the other submitters) with UHCC, GWRC and their hydrological and hydraulic engineering experts to discuss our particular technical concerns with them to see whether we can **resolve specific flood modelling issues with respect to various future development scenarios, baseline model and hydraulic neutrality**, and the various technical reports we have submitted.  
Stephen Pattinson (SOH) email 9th April 2020 to Josie Burrows (GWRC)*
- *Submissions on the Pinehaven Streamworks have not been made available by GWRC online to the public ... Why is this?  
Stephen Pattinson (SOH) email 15th April 2020 to Kirsty van Reenen and Josie Burrows (GWRC)*
- *A few questions about the model re-run:*
  - 1) *Regarding the "re-run of the flood model", do they mean the underlying hydrological model, or just the hydraulic model, or both?*
  - 2) *What model inputs are they intending to change?*
  - 3) *Since Bob Hall has visited the catchment (twice) and carefully investigated the hydrological modelling, Alex Ross lives in Pinehaven and has done an "Infiltration Report" for the catchment, Peter and Ros Ross have first-hand experience over many years of the effects of flooding on their property, and SOH members (all of whom live in the catchment) have engaged in depth with many local residents about their historical experiences of flooding in this catchment, could we participate in discussions with GWRC/UHCC regarding the proposed new parameters/inputs before the model is re-run? We are suggesting that GWRC/UHCC check first that everyone is happy with the revised parameters before the model/s are re-run.  
Stephen Pattinson (SOH) email 15th April 2020 to Kirsty van Reenen (GWRC)*
- *How much time will be provided:*
  1. *before the pre-hearing meeting for SOH/Alex Ross/Peter and Ros Ross' to review the "further information" after it is issued?*
  2. *between the issuing of the "further information" and the hearing?*  
Stephen Pattinson (SOH) email 16th April 2020 to Kirsty van Reenen (GWRC)
- *We would like to suggest that in addition to the 10-year and 100-year design hydrology, that Jacobs also run the Pinehaven model with the 25-year design hydrology for a 2019 climate (with no allowance for climate change) since the 4% AEP (1-in-25 year) event is the basis for determining the stream improvements, and would also be useful for comparing with the 8 Dec 2019 event in Pinehaven/Silv.  
Stephen Pattinson (SOH) email 17th April 2020 to Kirsty van Reenen (GWRC)*