Submission on PDP Presentation to Hearing 3

Paul Botha   7 December 2021

Submitter number 118

Background

- Our submission on the PDP included a number of points, one of which was the accuracy of the mapping of the stream corridors and areas of ponding. This was covered in Section 4 of our original submission.

- A Kiwirail culvert passing between our land and the Taupo swamp was shown in the incorrect position on the maps included in the PDP. Stream and flood modelling undertaken by Wellington Water on behalf of PCC used the incorrect position.

- The evidence of Nadia Nitsche, dated 5 November 2021 addresses the points raised in our original submission.

Submission points/issues

- Ms Nitsche agrees that the Kiwi Rail culvert I identified as being in in incorrect location will be corrected and an updated map provided to the Panel. I have not yet seen that updated map but agree that a corrected version should be included in the final version of the plan.

- With respect to the issue I raised in relation to the ponding, Ms Nitsche addresses this at paragraphs 20 to 23 of her evidence.

- At paragraph 21 she states that the ponding layer indicates inundation in excess of 50 mm in a 1 in 100-year event plus Climate Change.

- The ability to model inundation of 50mm (or 5 cm) will be dependent on the model inputs of which the ground elevation model will be key. The accuracy of the output of the flood model will be dependant on the accuracy and resolution of the input.

Paul Botha

Model accuracy

- Lidar is generally used to record ground elevations over large areas in New Zealand and has been used to obtain high resolution height data over PCC in the past. I assume that this data has been used as a model input but no information has been provided on the accuracy of the terrain model used for flood mapping.

- A project currently being undertaken by LINZ over a large part of New Zealand has a specification of vertical accuracy of <= 20 cm over 95% for the digital elevation model. This is the specification of the lidar accuracy being measured over most of New Zealand.

- Lidar data is typically less accurate in areas covered in bush, as are the streams on our property.

- Ms Nitsche has modelled ponding greater than 5 cm. I don't understand how ponding can be modelled to an accuracy of 5 cm when the input data set has an accuracy of maybe at best 20 cm. I am aware of both sediment and erosion which will have changed the stream contour by more than 5 cm over the year we have owned the property.
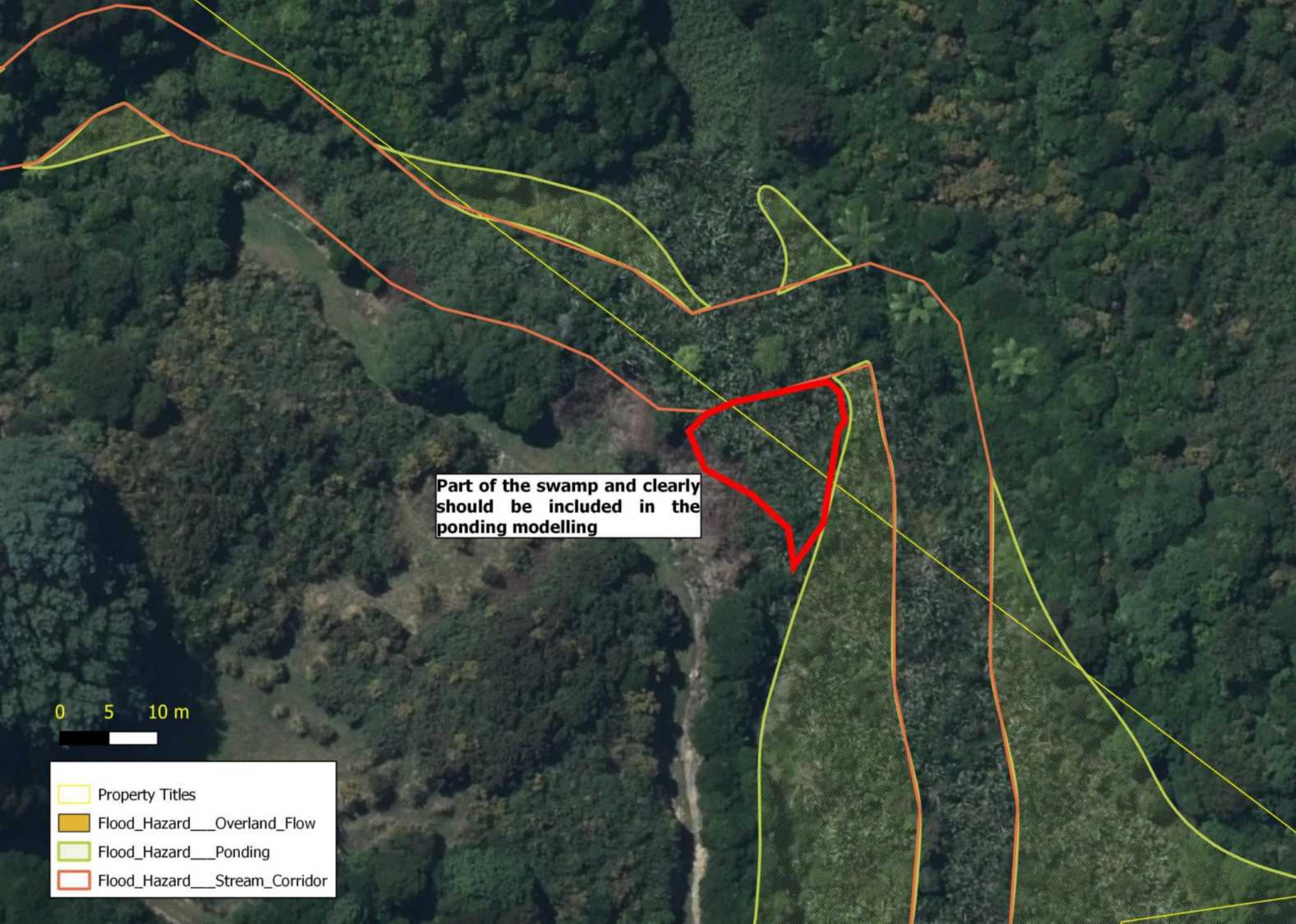
Flood Hazard zones included in PDP.

- Map shown to give reference to the enlargement shown on the next slide, which I believe demonstrates the accuracy issue with the ground elevation model and subsequent flood modelling.

Flood Hazard Ponding modelling.

- The area identified in red is clearly part of the swamp and should have been included in the ponding results.

- I believe that some of this discrepancy is due to the accuracy of the input ground elevation model.

- While this area should be included in the ponding, I believe that there are other areas that should be excluded or have a specified accuracy / uncertainty.

Part of the swamp and clearly should be included in the ponding modelling

0   5   10 m

Property Titles

Flood_Hazard___Overland_Flow

Flood_Hazard___Ponding

Flood_Hazard___Stream_Corridor

6

Remedy sought

- While the exact location of ponding/inundation areas is not going to impact me significantly, I do have concerns about their accuracy and how that is reflected in the PDP.

- I raised the issue of accuracy of GIS layers in Hearing Stream 1 and believe that the accuracy of those GIS layers needs to be referenced in some way in the plan.

- I have picked up errors in both the stream corridor, flood mapping, SNA layers and noise corridor that were released under the PDP and believe that on the balance of probability there are likely to be other un-intentional errors in the map layers elsewhere in the District.

- I believe that the plan needs to reference modelling accuracy for the flooding/inundation too. I would be more inclined to believe the layer if it had a stated accuracy on it of say ± 5m.

- I support the changing of ponding to inundation as proposed by Ms Nitsche should that change be made by the panel.