

33 Glenmore Road
Auckland 2010
22 March 2024

Eugene Vodjansky
BBO

Dear Eugene,

This memorandum is to record my review of BBO's work on stormwater and runoff management of Part 2 of the Takitimu North Link (TNL2).

I have been engaged by BBO to carry out a peer review of this work, specifically to review the following three documents:

- TNL 2 - Culverts Bridges and Streams
- TNL Stage 2 Specimen Report - Stormwater Management
- TNL Stage 2 Specimen Design - Downstream Flood Effects Investigation

These are Specimen Reports, which means that the work they describe does not include the detailed calculations needed at design stage but provides instead the hydrological and hydraulic calculations of flows and water levels that are the parameters for this subsequent design. My peer review was therefore requested by BBO to address whether the calculations and analysis described in the three reports follow good engineering practice and provide accurate and suitable information to support the application for resource consent from Bay of Plenty Regional Council.

I have not considered it necessary to examine the actual calculations and numerical models that BBO has used. I have instead considered the reports' description of the data assumptions and calculations as well as key results – flow and water level hydrographs. I have also discussed the modelling with the BBO staff who carried it out.

I did not uncover any technical errors in the calculations as reported. My written review did seek clarification or further detail on some points. BBO has then responded to all of these points to my satisfaction, in some cases adding further graphs for clarity.

I consider SWMM to be a particularly suitable choice of software, and design rainfall hyetographs and other input have been correctly applied to the models. I have concluded that the hydraulic calculations are sound and provide an accurate description of stormwater runoff both under present conditions and following completion of the TNL.

In my opinion, therefore, the reports and the model results follow good engineering practice and provide accurate and suitable information for applying to the regional council for the necessary resource consents.

Yours faithfully

Graham Macky
Macky Fluvial Consulting Ltd
