

**BEFORE A HEARING PANEL
CONSTITUTED BY NELSON CITY COUNCIL**

IN THE MATTER

of an application by **CCKV Maitahi Development Co LP** and **Bayview Nelson Limited** for a change to the Nelson Resource Management Plan (Plan Change 28)

IN THE MATTER

of Part 5 and Schedule 1 of the Resource Management Act 1991

STATEMENT OF EVIDENCE OF MAURICE GRAEME MILLS

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Section A – Introduction and Scope of Evidence

Name, qualifications and experience

- [1] My full name is Maurice Graeme Mills. I am a principal of Tonkin & Taylor Limited (T+T), employed as a Senior Civil Engineer and Project Director in their Nelson office.
- [2] I have over 35 years experience working on the feasibility, investigation, design, and construction management of a wide range of civil engineering infrastructure projects throughout New Zealand.
- [3] I have a New Zealand Certificate in Civil Engineering (NZCE Civil) and am a member of Engineering New Zealand (MEngNZ).

Expert Code

- [4] While this is not an Environment Court hearing I have met the standards in that Court for giving expert evidence.
- [5] I have read the Code of Conduct for expert witnesses issued as part of the Environment Court Practice Note 2014 (Part 7). I agree to comply with the Code of Conduct. I am satisfied that the matters addressed in this statement of evidence are within my expertise. I am not aware of any material facts that have either been omitted or might alter or detract from the opinions expressed in this statement of evidence.

Role in Project

- [6] I have been involved in the water supply, wastewater and stormwater inputs for the PPC28 area since November 2019, when T+T was engaged by the applicant to undertake a feasibility assessment of water supply, wastewater, and stormwater to service the development.
- [7] I was the primary author in preparing the technical assessment for the infrastructure sections (water supply, wastewater, and stormwater) of the “Infrastructure and Flooding Report” dated March 2021 that was submitted to support the private plan change application.

- [8] I was the primary author in preparing the technical assessment for the “Wastewater and Water Supply Addendum Report” dated August 2021 that was submitted to support the private plan change application.
- [9] I was co- author of the Stormwater Management Plan dated June 2022 that was submitted as part of the applicant’s expert evidence.
- [10] While preparing the feasibility assessment, technical assessments and during conferencing, I have visited the site on three separate occasions.
- [11] I have undertaken conferencing discussions with Mike Yarrall (representing NCC) regarding reticulated water supply and an interim joint witness statement dated 20 May 2022 has been filed with NCC, confirming all parties agree that the reticulated water supply measures proposed as part of the PC28 application are appropriate to service the development and I do not comment further on them in my evidence.
- [12] I have undertaken conferencing discussions with Malcolm Franklin (representing NCC) regarding reticulated wastewater and an interim joint witness statement dated 26 May 2022 has been filed with NCC, confirming all parties agree that the reticulated wastewater measures proposed as part of the PC28 application are appropriate to service the development and I do not comment further on them in my evidence.
- [13] I have attended facilitated expert conferencing discussions on stormwater on three occasions, the most recent being Friday 27 May 2022. Agreement was not reached on a number of matters which are discussed in detail in my evidence below.

Scope of Evidence

- [14] The purpose of my evidence is to describe the effects of the PPC28 area on stormwater management and determine whether the area can be developed by implementing a stormwater strategy that meets the minimum requirements of Nelson City Council and best practice and mitigates the effects of the development within the site and the receiving environment.

My evidence will also address significant matters in contention arising from submissions or any matters of disagreement between experts.

[15] Specifically, in my evidence I will cover:

- (a) Relevant facts and context
- (b) Summary of stormwater management report
- (c) Comments on Section 42A report
- (d) Conclusions

[16] I note for completeness that Mr Damian Velluppillai discusses in his evidence, the flood hazard affects in consideration of the PPC28 area.

[17] I note for completeness that Mr Stuart Farrant discusses in his evidence, the water sensitive design principals in consideration of the PPC28 area.

Section B – Executive Summary

[18] The stormwater management strategy for the PPC28 area proposes an integrated treatment approach which includes a variety of stormwater devices in a comprehensive management system that will address the quality of runoff in accordance with current best practice and will meet the contaminant removal level required under the provisions of the Nelson Tasman Land Development Manual 2020 (NTLDM for the proposed development.

[19] This strategy will avoid, remedy, or mitigate the identified or potential effects associated with stormwater discharge from the PPC28 area. The best practice options for stormwater management have been adopted by the stormwater management plan.

[20] The stormwater management plan will implement detention within the Kākā Stream, Walters Bluff and Brooklands catchments to protect the receiving environments from the potential detrimental effects of increased stormwater runoff from the PPC28 area.

Section C – Evidence

Relevant facts and context

- [21] I do not repeat the description of the plan change and refer to the summary of the application in the evidence of Mr Mark Lile for the applicant.
- [22] A Stormwater Management Plan (SMP) has been prepared for the PPC28 area which will demonstrate that the associated effects of the development within the site and the receiving environment can be appropriately managed and where possible, enhanced, as it changes from the current land use to a mixture of residential, recreational, and commercial.
- [23] The SMP has been developed based on the provisions of the Nelson Tasman Land Development Manual 2020 (NTLDM), with appropriate consideration also given to the objectives and policies within the Nelson Resource Management Plan (NRMP), and the feedback from the expert conferencing phase.

Stormwater quality

- [24] The current minimum requirements for stormwater quality are based on the provisions of the NTLDM with appropriate consideration also given to the objectives and policies within the NRMP.
- [25] Stormwater treatment is not currently required under the NTLDM for collector roads, local access roads and cul-de-sacs with an average annual daily traffic (AADT) volume of less than 5,000 vehicles per day at full development.
- [26] Clause 5.4.8.6 of the NTLDM says “*Appropriate stormwater treatment shall be selected based on water sensitive design principles and designed for on specific land use, associated contamination of concern and site constraints*”. NTLDM references national best practice guidance documents which include Auckland Regional Councils GD2017/001 (GD01), Hamilton City Council HCC07 and NCC/TDC Bioretention and wetland practice note, 2019 which

identify roads as a key producer of non-point source pollution resulting from development.

- [27] To warrant treatment device use, thresholds have been adopted within new developments which considers whole of catchment management planning. For residential development the threshold is 5,000 AADT per day. These limits have been adopted so Council aren't burdened in the future with substantial operation and maintenance costs.
- [28] The Transport Impact Report prepared by Traffic Concepts Ltd, dated January 2021, and the Maitahi Bayview – Further Information (Transport) letter dated 30 August 2021, submitted with the PPC28 application, classify all roads within the PPC28 area as sub-collector, local road – residential and residential lanes.
- [29] The maximum predicted traffic volume generated from the PPC29 area for a 750 lot development is estimated to be 3,675 trips per day (assuming a worst case scenario being there is no road connection to Walters Bluff Road). Under the provisions of the NTLDM, there is no requirement to provide treatment of runoff from roads within the PPC28 area.
- [30] First flush stormwater treatment (25mm of rainfall depth from the total area of contaminant generating surface) will however be provided for runoff from all public roads, within the Kākā Stream Catchment. Where practical, treatment will also be provided for car parks, hardstand areas and driveways.
- [31] For the Kākā Stream Catchment an integrated approach is proposed which will include a combination of smaller, near to source devices such as grated sumps, vegetated swales, rain gardens, tree pits and permeable pavements where appropriate, with larger devices located within the lower reaches of the catchment, such as consolidated rain gardens, wetlands, and stormwater ponds. Refer to the evidence of Mr Stuart Farrant for further discussion on the principals of water sensitive design.
- [32] Stormwater treatment is not required or currently proposed for runoff from roads within the Walters Bluff/Brooklands catchment. This is consistent

with recent developments in the northern Atawhai hillslopes area, discharging into the Nelson Haven, and is also very difficult to implement due to the steep nature of the topography. Depending on the final subdivision layout, there may be opportunity to implement treatment measures along the ridgeline road and this will be reviewed at subsequent stages of the development. Those decision will however need to be made later while the applicant is progressing through the detailed design phase and be addressed with the Council within the resource consent process.

- [33] The use of inert building materials to minimise the generation of contaminant-laden runoff will be adopted where possible.
- [34] On individual lots, the use of impervious paving will be minimised where possible.
- [35] In summary, the SMP has been prepared on the basis that the quality of stormwater discharged from the PPC28 area will as a minimum, be treated to the best practical standards, and where possible, exceed these standards, as a part of ensuring the effects of urban development are appropriately managed and that the downstream impacts of freshwater values are maintained or enhanced.

Stormwater quantity and detention

- [36] The quantity of runoff from the fully developed PPC28 area will, increase from the existing greenfields situation. Control of this volume of runoff will need to be incorporated into the stormwater management design to ensure the proposed urban development does not result in adverse effects on the receiving environment.
- [37] The Kākā Stream catchment discharges into the Maitahi/Mahitahi River which is known to experience downstream flooding during high rainfall events.
- [38] The existing piped stormwater network downstream of the Walters Bluff/Brooklands catchment discharges into the Nelson Haven. Initial

investigations indicate it is unlikely to have sufficient capacity to accommodate additional flows from the PPC28 area.

- [39] The effects of the PPC28 on stormwater flows and flooding associated with increased levels of impervious surface and runoff shall be mitigated through the provision of detention. For areas where the downstream receiving network has insufficient capacity for the increased flow, and/or where there are known flood risks downstream, the post development peak flows shall not exceed pre-development peak flows for the 10% AEP (10 year ARI) and 1% AEP (100 year ARI).
- [40] Detention will be achieved through a combination of options which include:
- (a) Storage at source (individual onsite detention/water reuse tanks).
 - (b) Online detention by way of wetlands, stormwater ponds and detention basins.
 - (c) Offline detention by way of rain gardens, wetlands, and stormwater ponds.
- [41] In my opinion, appropriate provision for stormwater detention, as set out in the SMP, will protect the receiving environment from the potential adverse effects from the increased flows generated by the development.

Stormwater conveyance

- [42] The primary stormwater system will at a minimum, provide capacity for the 6.67% AEP (15 year ARI) rainfall event and a secondary system for the 1% AEP (100 year ARI) rainfall event, including the effects of climate change, in accordance with the NTLDM.
- [43] For the Kākā Stream catchment the primary system will consist of a series of pipe systems and open channels/swales, discharging into the Kākā Stream and new treatment wetlands in the lower catchment area, before flowing into the Maitahi/Mahitahi River via the existing Kākā Stream confluence.

- [44] For the Walters Bluff/Booklands catchment the primary system will consist of a piped network connecting to the existing downstream network which flows into the Nelson Haven. The existing piped network will likely need to be upgraded to accommodate the additional flows from the PPC28 area.
- [45] The secondary system for both catchments will utilise overland flow paths located within the road network and green corridors.
- [46] It is proposed to realign the lower reach of the Kākā Stream (from near the existing woolshed) and reform it as a constructed channel with capacity to convey the post developed 1% AEP event. This lower reach of Kākā Stream is considered to be highly modified and is currently comprised of a shallow channel interspersed with multiple other smaller intermittent drains and overland flow paths across the flat flood plain. The realignment will be contained within the PPC28 area and does not include the section of Kākā stream between the PPC28 boundary and the confluence with the Maitahi/Mahitahi River.
- [47] As part of the Ecology (Terrestrial and Fresh Water) expert conferencing undertaken on 13 May 2022, all the ecologists agreed that the water quality and ecology of the lower reaches of the Kākā Stream are highly modified and are currently impacted by existing land use. There is potential to achieve positive outcomes through PPC 28 with respect to the water quality and ecology for either the current alignment or a proposed realignment of the lower reaches of the Kākā Stream.
- [48] In my opinion, both the primary and secondary systems can be located within the PPC28 area without any significant challenges and provides suitable measures to manage stormwater conveyance within the development.

Maitahi / Mahitahi riverbank erosion

- [49] The existing bank of the Maitahi/Mahitahi River has been noted as eroding the northern bank at the bottom end of the site, adjacent to 5 Ralphine Way. The river has retreated approximately 40m to the north since the

1940's, resulting in the loss of land withing PPC28 area and neighbouring land to the south-east.

- [50] It appears that over time, stopbanks and planting has taken place on the southern side of the river. This has been acknowledged in Attachment I of the s42A report, prepared by Dr Fisher. This has resulted in reducing the flood storage capacity and constraining natural flood paths, thereby directing increased flow towards the PCC28 area and adjacent private land, contributing to the northern migration of the river and loss of land withing the PCC28 area.
- [51] A report (Ecological Restoration Plan Report, Maitai River, Morpium, July 2020) commissioned by NCC recommended solutions for bank erosion mitigation by NCC. We note that recent works have been undertaken to remove willows on the southern side of the river as recommended in the report.
- [52] Adopting measures proposed in the Morpium report, including restoring the river back to its previous alignment are positive steps in managing the ongoing erosion issues.

Comments on Section 42A reports

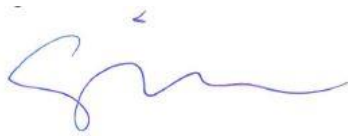
- [53] I have reviewed the Section 42A report on Stormwater and Flood Risk dated 28 May 2022 and address the stormwater management aspects of the report below.
- [54] The issues raised in the Stormwater and Flood Risk report, with respect to stormwater matters include:
- (a) Lack of detail and feasibility assessment on development wide stormwater options.
 - (b) Lack of stormwater management plan.
 - (c) Lack of information on the Kākā Stream realignment

- (d) For water quantity, retention, and detention it is not clear how the proposed retention and detention will be provided, or the proposed design standards being adopted.
- (e) Assessment of the Maitahi/Mahitahi River, bank erosion
- (f) Lack of spatial overlay of the relevant cross disciplines

[55] All these issues have either been addressed in my evidence above or in the Stormwater Management Plan submitted as part the applicant's expert evidence.

[56] Comments on flooding are addressed in the evidence of Mr Damian Velluppillai.

Dated 14 June 2022

A handwritten signature in blue ink, appearing to be 'M. Mills', with a small blue mark above the first letter.

Maurice Mills