

**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 Stuart Farrant

Applicants' Consultant:

Landmark Lile Limited
PO Box 343
Nelson 7040
Attention: Mark Lile
Email: mark@landmarklile.co.nz
Tel: 027 244 3388

Counsel acting:

John Maassen
— BARRISTER —

✉ john@johnmaassen.com
🌐 johnmaassen.com
☎ 04 914 1050
📠 04 473 3179

Table of Contents

Section A – Introduction and Scope of Evidence	3
Name, qualifications and experience	3
Expert Code	4
Role in Project	4
Scope of Evidence	5
Section B – Executive Summary	6
Section C – Evidence	6
Relevant facts and context	6
Stormwater quality	8
Stormwater quantity and retention	10
Comments on Section 42A reports	11

Section A – Introduction and Scope of Evidence

Name, qualifications and experience

- [1] My full name is Stuart James Edgar Farrant. I am a Principal Ecological Engineer and Southern Regional Manager at Morphem Environmental Ltd; and hold a Bachelor of Engineering (Natural Resources) from University of Canterbury
- [2] I have over 15 years' experience working in multiple aspects of freshwater management and ecological engineering. I have worked for Morphem Environmental for 8 years establishing the southern sector office (Wellington) in 2014. Prior to that, I worked for 5 years as an Ecological Engineer in Melbourne, Australia.
- [3] I have experience working in a range of aspects relating to three waters management including design, technical review and auditing of constructed wetlands, vegetated stormwater treatment/conveyance systems, stream restoration and land application. Specifically, I have extensive experience with the design and delivery of integrated stormwater management devices to mitigate adverse water quality effects from urban development in addition to natural wetland restoration projects.
- [4] Locally I was technical lead for the Groom Creek wetland project which included the realignment of approximately 270 m of artificially channelised Maitai River tributary and construction of naturalised wetlands to manage sediment and nutrient related to catchment activities (forestry). Additionally, I was involved in the Maitai River Ecological Enhancement Plan (part of Project Maitahi) which provided recommendations for enhancement works within the main river corridor including around the confluence with Kaka Stream (Dennes Hole and upstream areas of active erosion).
- [5] I have contributed to and authored technical design guidelines for Councils/Utilities in New Zealand and Australia (including the Nelson/Tasman Water Sensitive Design Practice notes) and am on the technical advisory team for Dairy NZ Constructed Wetland Guidelines. I

was awarded a 2018 Winston Churchill Fellowship to travel internationally for the purposes of researching leading practice with urban water management in Europe, Scandinavia and USA.

- [6] I am a member of Engineering New Zealand and Co-Chair of The Sustainability Society which is a technical interest group of Engineering New Zealand.

Expert Code

- [7] While this is not an Environment Court hearing I have met the standards in that Court for giving expert evidence.
- [8] 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

- [9] I have been involved in the stormwater and freshwater aspects of the PPC28 process since 2020, when Morphum was engaged by the applicant to undertake a review of proposed environmental provisions and provide recommendations to support a plan change which would promote improved freshwater outcomes and promote enhancement of Kākā Stream.
- [10] I was the primary author in preparing the stormwater and freshwater sections of the “Preliminary Structure Plan Environmental Review” dated April 2021 that was submitted to support the private plan change application.
- [11] This report included (amongst other details) a series of recommended principals which were subsequently integrated into the Plan Change request as Schedule X9 provisions.

- [12] I was the author of the memorandum titled ‘Comments on PPC28 Submissions’ dated March 2022 which provided internal response to submissions made on the notified Plan Change application.
- [13] As part of these works, I have visited the site on three occasions including with support from Morpium Freshwater Scientist (Mark Lowe) when mapping of existing natural streams (and their transition points) was undertaken. I am familiar with Kākā Stream across a range of seasonal conditions and have considered its existing and potential conditions with regards to potential threats from development related impacts.
- [14] I have undertaken conferencing discussions with David Wilson (representing NCC), Dali Suljic (representing Save the Maitai) and Roger Young (representing Friends of the Maitai) regarding Water Sensitive Design and Stormwater management with a joint witness statement dated 20 May 2022 filed with NCC.
- [15] 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

- [16] The purpose of my evidence is to describe the effects of the future development of PPC28 area on stormwater management and the ability to undertake change in land use in a manner which protects, restores, and enhances the freshwater values within the Kākā Stream on downstream receiving environments. This does not include consideration of development related flood mitigation, freshwater/terrestrial ecology construction phase erosion, sediment control or provision of reticulated infrastructure which are addressed by other experts.
- [17] Specifically, in my evidence I will cover:
- (a) Relevant facts and context
 - (b) Summary of X9 principles and relevant elements of stormwater management report

- (c) Comments on Section 42A report
- (d) Comments on submissions
- (e) Conclusions

Section B – Executive Summary

[18] Based on my understanding of the PPC28 area, the Kaka Stream receiving environment and the wider ecological context it is determined that potential future development will require a well considered approach to management of site generated runoff including for water quality and quantity. It is noted that this will intentionally exceed existing requirements required under the NTLDM which is considered unsuited to protect the freshwater values in line with requirements under the NPS-FW. In particular this relates to the management of stormwater to reduce and mitigate impacts from all impervious surfaces through retention and detention of runoff volumes and flowrates and additionally to provide robust water quality treatment for urban contaminants rather than only those from high use roads.

[19] It is considered that the proposed landuse change from current stock grazing to well managed and site responsive urban development will enable improved freshwater outcomes compared to the existing condition.

Section C – Evidence

Relevant facts and context

[20] 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.

[21] I do not repeat the Water Sensitive Design Principals which were included in the PPC28 documentation (X9). These Principals were developed to reflect the sensitive receiving environment of Kākā Stream and the need to manage water quality and quantity from development to provide a suitable level of protection to support existing and future freshwater values.

- [22] Following expert submissions and during conferencing the level of detail provided in the PPC28 application with regards to stormwater management was raised. At this time it was highlighted that the plan change request was not supported by developed design which will be undertaken at a later date in support of the resource consent process. The plan change provisions (in particular X9) have therefore been put forward to ensure that subsequent design has a clear and transparent standard to achieve to ensure appropriate protection of Kākā Stream and receiving environments.
- [23] Following initial expert conferencing, and in response to concerns regarding demonstration of feasibility, the applicant team have collectively prepared a stormwater management plan for the PPC28 area which demonstrates that the site can feasibly be developed in a manner which supports the provision of housing whilst protecting and enhancing the freshwater receiving environment. This is based on a proposed integrated Water Sensitive Design approach which includes the appropriate management of site generated stormwater.
- [24] Following initial expert conferencing, the applicant team have updated the structure plan to more clearly communicate their vision, the extents of developable land, and the intended land use in other areas. This revision more accurately shows the limited scale of development and the increased proportions of land to be retired from grazing and converted to regenerating bush. This will positively reduce the adverse impacts from current grazing over large parts of the PPC28 area (including runoff quality and quantity) and reduce the area of urban development required to be managed from a stormwater perspective.
- [25] Site generated stormwater from developed residential areas shall be managed for contaminants (including metals, nutrients, sediments, hydrocarbons, and temperature) and frequent flow hydrology. Stormwater shall be managed in accordance with best practice to protect Kākā Stream, Maitai/Mahitahi River and coastal waters from adverse impacts related to water quality and quantity whilst also connecting the future community with the water system and supporting wider urban ecology outcomes.

- [26] The stormwater management plan has considered the existing best practice guidance in the Nelson Tasman Land Development Manual 2020 (NTLDM) (including GD04) and the objectives and policies within the Nelson Resource Management Plan (NRMP) but it is noted that these existing documents are not considered to provide an optimal level of environmental protection. The proposed PPC28 will therefore exceed these existing local guidance documents to deliver more integrated outcomes.

Stormwater quality

- [27] 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. Based on traffic modelling that would negate the need for stormwater treatment for public and private roads across the development area under rules in the NTLDM.
- [28] Stormwater treatment is not currently required under the NTLDM for runoff from residential roofs as long as they are constructed with inert materials (i.e. not Galvanised). Based on modern building methods that would negate the need for stormwater treatment for roofs across the development area.
- [29] Monthly water quality monitoring has been undertaken by Cawthron for a period of 12 months. As monthly samples (over 1 year only) it is not possible to draw definitive conclusions around trends or statistical averages, but it is noted that; results for E. coli concentrations exceed NPS-FM bottom lines above and below proposed development and breached the NPS-FM 'E' Band following moderate rainfall. Turbidity and Suspended solids exceeded ANZECC trigger values (cool dry low-elevation rivers) both above and below development.
- [30] The current rural land use has historically contributed to degraded water quality through stock access to the main Kākā Stream and tributaries, runoff from pasture and synthetic fertilisers and agri chemicals. Development of the PPC 28 area will result in a wholesale change in land use with stock

removed from the landscape. It is anticipated that this will substantially improve many water quality parameters including sedimentation, nutrient loads, pathogens/bacteria and riparian margin stability. Large areas of currently grazed steep hillslopes will be retired from farming and not developed due to topography and aspirations for connected green networks. These slopes shall be revegetated with locally sourced indigenous vegetation. Revegetation of these currently grazed slopes will alter runoff in frequent small rainfall events through the interception of rainfall, evapotranspiration and infiltration to shallow soils. This will better represent (and in time transition towards) a more natural hydrological regime which reduces the annual volume of runoff and reduces the flashiness of flows which can contribute to instream scour and erosion. Quantification of these benefits will form a part of future resource consent documentation.

- [31] Kākā Stream is still considered to be vulnerable to adverse impacts from unmitigated post developed urban stormwater discharge. These impacts result from wind derived contaminants, vehicle related contaminants, organic nutrients from residential gardens/pets and elevated temperatures from runoff in summer. Collectively, without appropriate management, these impacts can cause chronic and acute impacts on freshwater fish, invertebrates and downstream water quality. It is therefore proposed that all site generated stormwater is managed in an integrated manner to mitigate these impacts in a reliable and maintainable manner. This will adopt an approach commonly referred to as Water Sensitive Design.
- [32] For the Kākā Stream Catchment an integrated approach is proposed which will include a combination of smaller, near to source devices such as rainwater tanks (with non-potable reuse), soakage (where technically appropriate) and permeable pavements (where appropriate), with larger devices located within the lower reaches of sub catchments, such as consolidated rain gardens, wetlands and stormwater ponds. These devices will be designed in accordance with national and international best practice including via an integrated Water Sensitive Design approach with input from Environmental Engineers, Urban Designers, Landscape Architects

and Scientists. Whilst this will broadly follow the process adopted in Auckland (GD04) as suggested by Mr Wilson it is noted that GD04 is an Auckland specific guideline only and has a number of limitations which will be considered in the local context to ensure a high level of protection.

- [33] 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.
- [34] It is my opinion that the quality of stormwater discharge from the PPC28 area will as a minimum, be treated to the best practical standards, and where possible exceed these standards.

Stormwater quantity and retention

- [35] The quantity of runoff from the fully developed PPC28 area will increase from the existing greenfields situation in areas zoned for development and likely decrease in areas identified for revegetation or enhancement planting. Control of this volume of runoff will need to be incorporated into the stormwater management design to ensure the proposed development does not result in adverse effects on the receiving environment, particularly from frequent small events (less than 1 year ARI) which are known to have the greatest influence on in stream stability.
- [36] The effects of the PPC28 on stormwater flows associated with increased levels of impervious surface shall be mitigated through the provision of integrated water sensitive design solutions which promote retention and detention across the full spectrum of rainfall events. This means that development across the PPC28 area will broadly mimic a natural hydrological condition to protect and enhance freshwater values.

- [37] Retention of runoff volumes will be integrated to mimic natural retention which occurs through evapotranspiration and infiltration. This will be achieved through a combination of options which include:
- (a) Rainwater/stormwater capture and reuse
 - (b) Infiltration of small events through permeable paving, soakage and passive irrigation.
 - (c) Evapotranspiration by vegetated treatment systems including wetlands and bioretention (with infiltration or internal storage provided)
 - (d) Revegetation of undeveloped steeper slopes and riparian margins
- [38] Detention of runoff flowrates will be designed for in an integrated manner which incorporates benefits of above-mentioned retention. This will therefore adopt a more holistic systems approach rather than reliance on a static Extended Detention Volume (EDV) which is considered overly simplistic. This will be achieved through a combination of options which could include:
- (a) Extended detention in wetlands and bioretention systems
 - (b) Additional on lot detention storage
 - (c) Additional detention in flood attenuation basins
- [39] Design development shall be supported by an appropriate modelling approach which enable quantification of water quality and quantity. This is likely to include continuous simulation to enable modelling of integrated stormwater measures in series and parallel. The outputs of modelling will be a key component of future resource consent applications.
- [40] In my opinion, the provision of the proposed stormwater retention and detention will protect the receiving environment from any potential adverse effects from the increased flows generated by the development.

Comments on Section 42A reports

- [41] I have reviewed the Section 42A report on Stormwater dated 28 May 2022 and address the stormwater management aspects of the report below.

[42] The issues raised with respect to stormwater and water quality 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) Lack of spatial overlay of the relevant cross disciplines

[43] All these issues have either been addressed in my evidence above or in the provided Stormwater Management Plan

[44] Based on my understanding of the site, analysis undertaken in support of the SMP and experience with the application of water sensitive design in residential areas it is concluded that the site can be developed for residential use in accordance with the proposed structure plan in a manner which effectively protects and restores the Kākā Stream and downstream freshwater values. This will require an integrated development plan which will need to demonstrate compliance with the offered X9 Principles and build on the SMP which has been provided as part of the PPC28 application. This can be provided as part of subsequent resource consenting as the design is further developed.

Dated 14th June 2022



Stuart Farrant